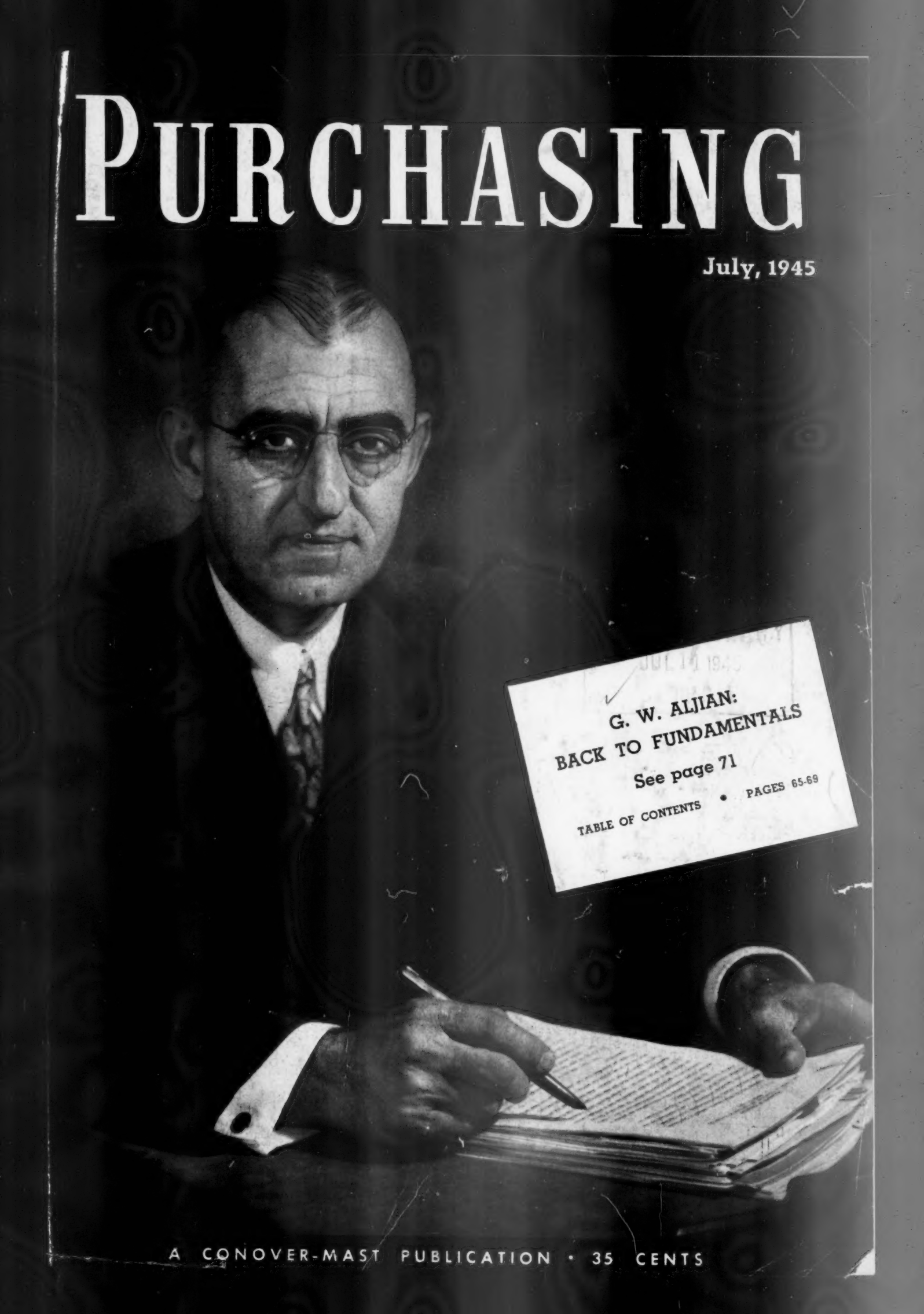
PURCHASING

July, 1945



G. W. ALJIAN:
BACK TO FUNDAMENTALS

See page 71

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A CONOVER-MAST PUBLICATION • 35 CENTS

VR v. 19 July - Dec. 1945



A "LIFT" for Production

WHEREVER possible, industry uses time-saving devices to increase production of war material. This fork-lift truck, for instance, which can pick objects off the ground and raise them to a height of 14 feet, gives production a "lift" by lowering time required for handling, loading and similar operations.

In all types of plants—large and small—production always gets a "lift" when machinery operates smoothly and efficiently. Extremely helpful in achieving this is effective lubrication—assured with Texaco Products and Texaco Specialized Engineering Service.

Texaco Products, preferred in many fields, can definitely increase production in *your* plant, too.

Texaco Lubrication Engineering Service is available through more than 2300 Texaco distributing plants in the 48 States. Get in touch with the nearest one, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

RECONVERSION RUSTPROOFING

5 Points to Remember

1. Upon termination of war contracts, Government-owned production equipment must be rustproofed promptly, in accordance with *official instructions.*
2. Ordnance Specification P.S. 300-4 contains *official instructions* for the complete processing of such equipment.
3. These instructions require that only rustproofing materials meeting Government specifications be used.
4. *Texaco rustproofing products meet Ordnance specifications for application on Government-owned equipment.*
5. For full information, see your Texaco representative or write to us.

TEXACO

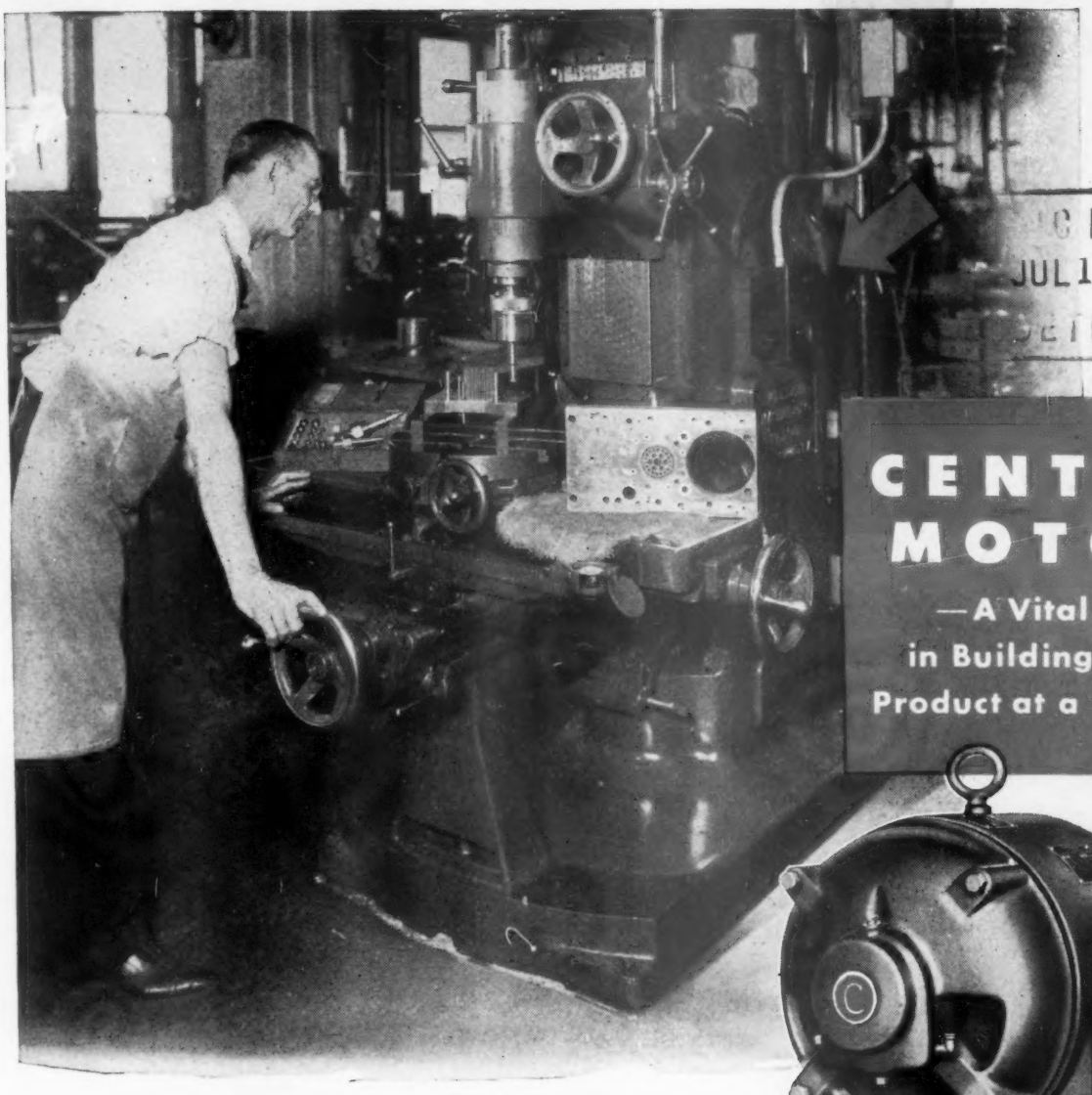
TEXACO Lubricants, Fuels and Engineering Service

TUNE IN THE TEXACO STAR THEATRE WITH JAMES MELTON EVERY SUNDAY NIGHT—CBS

Jack

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CENTURY MOTORS

—A Vital Factor in Building a Better Product at a Lower Cost

Get Closer Tolerance With the Help of Century Motors' Unusual Freedom from Vibration

The Century Motor on the jig boring machine shown above is inside and out of sight and forgotten for many days at a time, but it is a vital factor in holding tolerances to ± .0002" on tools, jigs, and fixtures. These Century Motors start, come up to speed, and run quietly and smoothly.

Century Motors' unusual freedom from vibration contributes to the precision work demanded of tool room machinery.

Whether for the tool room or the production shop, there is a Century Motor to meet any machine tool and practically any other application. There is a wide range of types and sizes to meet the power demands and to provide protection against the surrounding atmospheric conditions.

They are offered in almost any combination of horsepower ratings and frames from 1/20 to 600 horsepower.

Specify Century Motors on all your electrically powered equipment. Engineered to the functional characteristics of the machines they drive to assure top performance—Century Motors are a vital factor in building a better product at a lower cost.

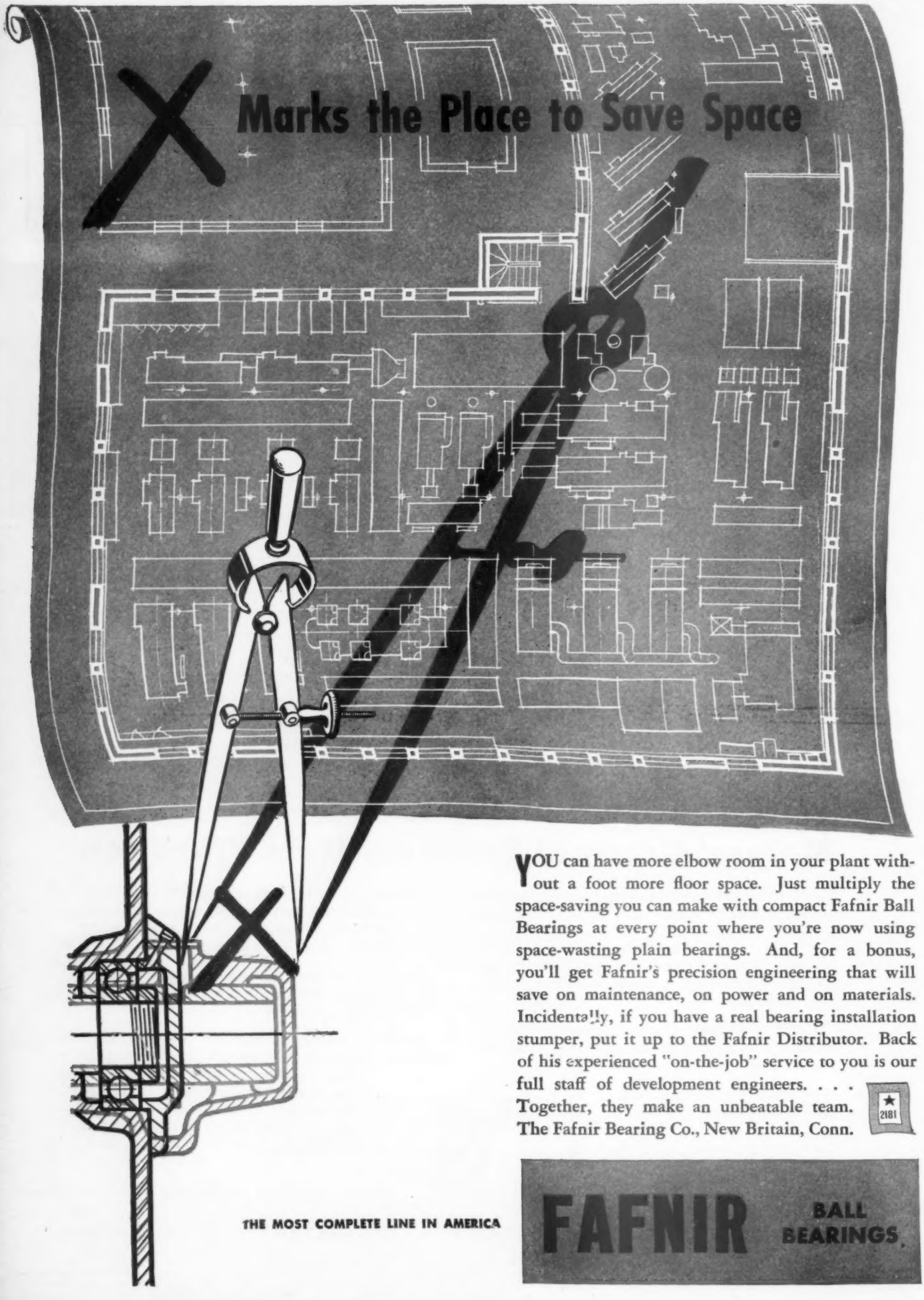
425

Century C MOTORS

CENTURY ELECTRIC COMPANY • 1806 Pine Street • St. Louis 3, Missouri

Offices and Stock Points in Principal Cities

PURCHASING, published monthly by Conover-Mast Company. Publication Office, Orange, Conn. Editorial and Executive Offices, 206 East 42nd St., New York 17, N. Y. Entered as second-class matter August 8, 1942, at the Post Office in Orange, Conn., under the act of March 3, 1879. Subscription, $3 for one year, $5 for two years in the U. S. A. Canada and Foreign $4.00. Volume XVIII, No. 7.



YOU can have more elbow room in your plant without a foot more floor space. Just multiply the space-saving you can make with compact Fafnir Ball Bearings at every point where you're now using space-wasting plain bearings. And, for a bonus, you'll get Fafnir's precision engineering that will save on maintenance, on power and on materials. Incidentally, if you have a real bearing installation stumper, put it up to the Fafnir Distributor. Back of his experienced "on-the-job" service to you is our full staff of development engineers. . . . Together, they make an unbeatable team. The Fafnir Bearing Co., New Britain, Conn.

★ 2181

THE MOST COMPLETE LINE IN AMERICA

FAFNIR BALL BEARINGS

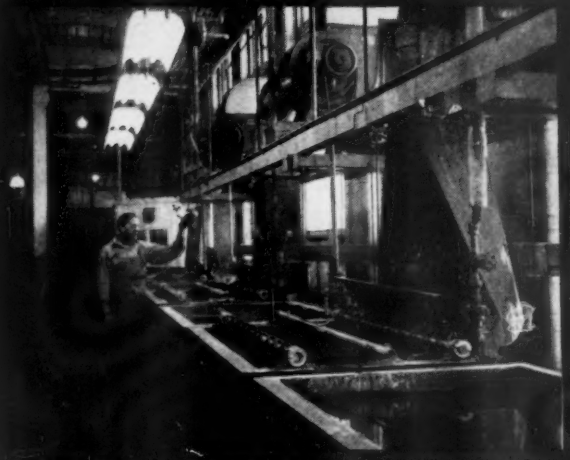


PRECISION-MOLDING of rubber goods starts in our completely equipped, modern drafting room. Acushnet tackles product problems from scratch. We have designed many intricate molds here for our customers.



PRECISION MOLDS are born in our machine shop and are made only in connection with our molding activities. Here the latest machine tools turn out molds to exacting specifications and change or repair old molds.

MOLDED GOODS
RUBBER AND SYNTHETICS



PRECISION is a matter of cleanliness, too. Acushnet uses what is universally considered to be the very best method yet discovered (electrolitic) to guarantee *chemically clean* molds.



PRECISION on the line. Skilled hands and watchful eyes finish and inspect Acushnet precision-molded rubber parts. Each of Acushnet's more than 1200 workers is trained to only one standard — *perfection.*

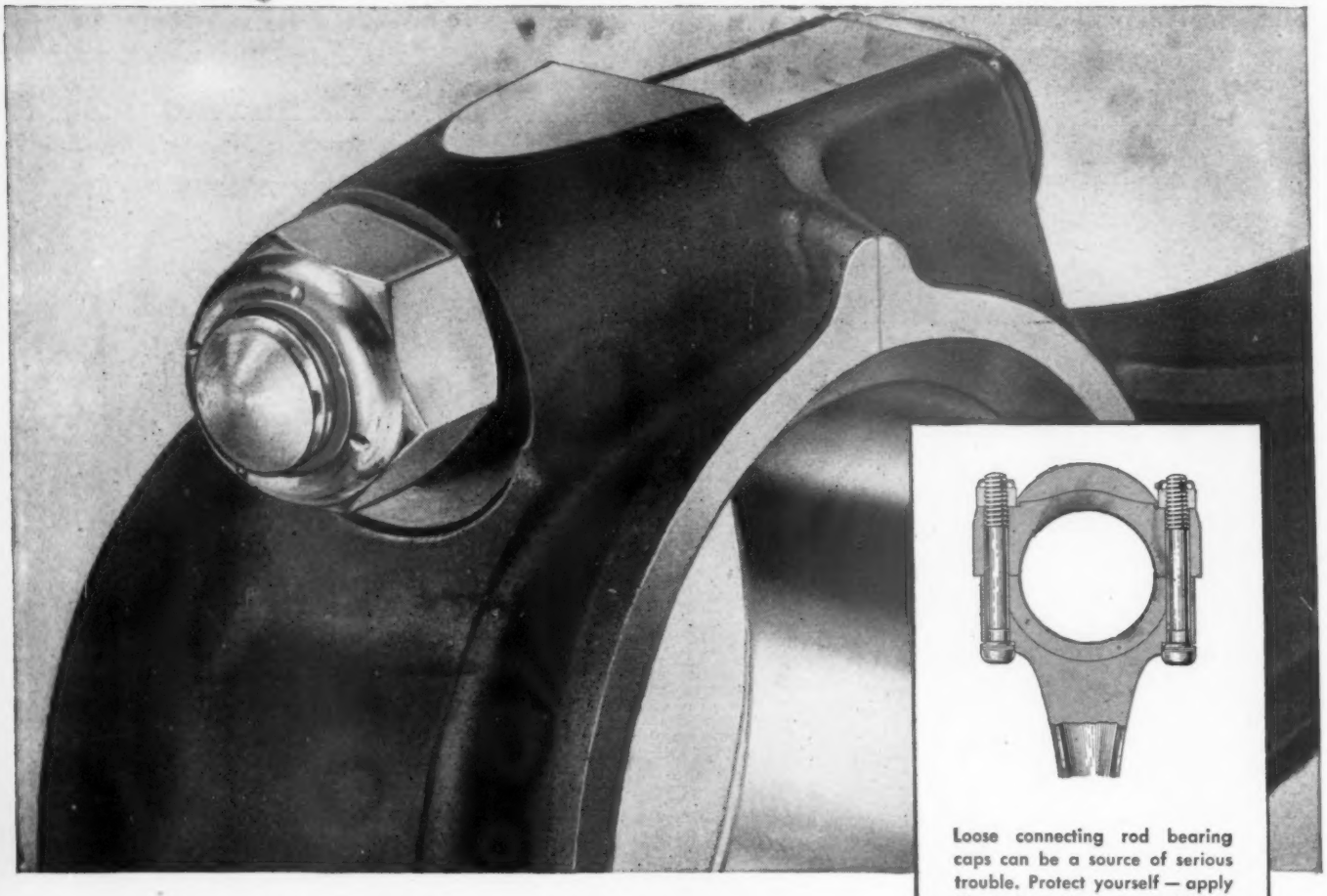
ACUSHNET

RUBBER AND SYNTHETICS

PRECISION • MOLDED

The same experience and skill and painstaking effort which has won Acushnet five Army-Navy "E" Awards is at your service — war orders permitting. Acushnet Process Co., New Bedford, Mass.

CORRECT *for connecting rods*



Loose connecting rod bearing caps can be a source of serious trouble. Protect yourself — apply Elastic Stop Nuts; they hold fast. This, or any other nut, won't stop bearing wear or bolt stretch, but it can remedy connecting rod troubles resulting from loose nuts.

Make certain that the bolt extends completely through the collar.

THIS NUT ALWAYS HOLDS FAST

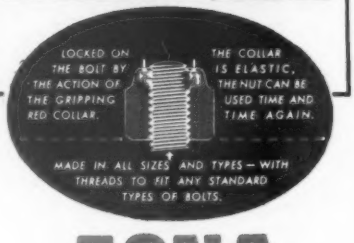
Under tough operating conditions, on connecting rod bearings for instance, the Elastic Self-Locking Stop Nut does its job, by gripping fast. An ordinary castellated nut or jam nut might break loose, lose its grip and fail, and so would the parts it is assigned to hold together.

But not the Elastic Stop Nut. It uses its head—for, built into the head of this nut is a locking device, an oil-resistant elastic compression collar. This forms itself to the individual bolt thread, grips it tight. The nut won't loosen or back off under the severest vibration, shock or impact.

You need no cotter pins, no lock-washers or other auxiliaries when you use Elastic Stop Nuts. Thus there is no possibility of broken bits of these extras in the crankcase. Nor is there any distortion of or damage to the bolt or the cap. Made to fit any standard bolt or stud, Elastic Stop Nuts can be used over and over again with fully adequate gripping power. You can turn this nut up to the exact torque you need and be sure it will stay there.

Here is definite insurance against loose bearing caps which means greater safety and reliability in use; greater economy in assembly and maintenance.

LOCKS FAST TO MAKE THINGS LAST



ESNA

TRADE MARK

ELASTIC STOP NUT CORPORATION OF AMERICA

Plants at: Union, New Jersey and Lincoln, Nebraska

Sales Office: 1060 Broad St., Newark 2, New Jersey

New! Just Perfected! A Brushing Tool that Cuts 4 Times Faster... Lasts 3 Times as Long!

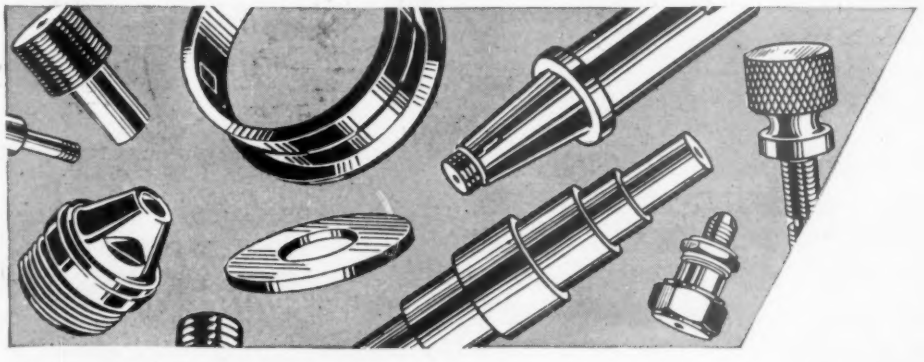


OSBORN'S new Monitor brushing wheel No. 1409-S-22 provides industry with a production tool capable of *increasing production rates* substantially and ultimately *decreasing cost per unit.* It extends the application of fine wire brushes to work which previously, in many cases, had to be done by hand.

This new Monitor is the ideal tool for deburring aluminum, brass and other ductile metal parts—also for hardened and unhardened steel parts.

It attains and *retains* high-level, uniform cutting ability—for the life of the brush—qualities which make it an excellent performer on rubber parts or wherever there is resistance to the fill wire.

The new Monitor 1409-S-22 is another reason to consider brushing as a finishing procedure which can help make *your products*—the ones you make now or those you plan to make—*better performing, better looking and better selling! And lower-cost products to make!*



THE OSBORN MANUFACTURING COMPANY
5401 Hamilton Avenue *Cleveland, Ohio*

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WORLD'S LARGEST MANUFACTURER OF BRUSHES FOR INDUSTRY

MACKLIN



MACKLIN Centerless Grinding Wheels are becoming more and more important in their wide variety of uses and applications. Costs are constantly being cut and more exacting limits are being obtained in this field of grinding. Macklin Grinding Wheels, used on centerless work, have consistently produced efficient results. They grind fast and cool and give an excellent finish while grinding to exacting limits.

MACKLIN high quality wheels, in all sizes and shapes for EVERY grinding purpose will

"PROTECT YOUR PRODUCTION"

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Spotting Trails

OVER STRANGE TERRAIN

VISIBLE BY NIGHT, invisible by day—that's a must for the land buoys planted to guide our armed forces at night through unknown country.

Markers coated with Vita Var Phosphorescent Paint, manufactured by Vita Var Corporation, Paint Engineers, Newark, N. J., fill the bill.

To assure efficient, economical packaging and complete protection for their product, the makers of Vita Var use Crown Cans.

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GET THIS "Know-How" Information FOR YOUR PLANT

USE COUPON BELOW

☐ **1. PURE POLYSTYRENE** — Recommended for "doping", coating impregnating or sealing radio frequency, ultra-high frequency or general electronic applications, is described in bulletin giving full information on "Polyweld". It is non-hygroscopic and moisture repellent, and is easily applied by dipping or with a brush. American Phenolic Corp.

☐ **2. PORTABLE INFRARED Equipment** — Bulletin describes Fostoria portable infrared equipment, which can be moved anywhere, tilted in any direction. The group of four models provides radiation coverage ranging from 275 sq. in. on the smallest to 2000 sq. in. on the largest. Majority of models are wired to accommodate lamps ranging from 125w to 500w 120v. Heavy duty casters permit easy rolling. Fostoria Pressed Steel Corp.

☐ **3. ARC WELDING PROCESS** — "Lincolnweld", new automatic shielded arc welding process, is illustrated and described in detail in new bulletin available from Lincoln Electric Co.

☐ **4. ELECTRONIC CONTROLS** — Twelve page catalog on "Wheelco Electronic Controls", bulletin No. Z6300, is designed to supply a convenient, condensed lighting of principal items of equipment supplied by the company. It describes indicating pyrometers and pyrometer controllers, indicating resistance thermometers and controllers, input and program controllers, portable potentiometers, combustion safeguards and thermocouples. Wheelco Instruments Co.

☐ **5. BOILER TROUBLES** — Bulletin describes K.A.T. all-colloidal water treatment, which is claimed to work with all waters, eliminating need for sampling of water except merely to determine the hardness. American K.A.T. Corp.

☐ **6. HEATERS — Automotive and aircraft** heaters are described in 4-page folder released by Fluid Heat Divn., Anchor Post Co. Automotive type heaters are rated at 15,000 to 40,000 BTU/hr, and aircraft heaters from 15,000 to 100,000 BTU/hr. Folder shows cutaway views of the heaters and gives complete specifications. It also explains new combustion process known as vapor entraining.

☐ **7. CORROSION PREVENTION**—"Digest of Corrosion Preventive Specifications" is title of 60-page booklet giving a brief description of the principal government corrosion preventive specifications and the Houghton products for each. Subjects are numerous and include rust prevention, packaging, ethylcellulose hot dipping, lubrication and corrosion protection of corrodible metals, processing, packaging, packing and marking of production equipment, etc. E. F. Houghton Co.

☐ **8. FASTENINGS** — Catalog of self tapping screws, socket screws and other fastening devices has been published in its sixth edition by the Parker-Kalon Corp. Tables have been improved and simplified, and new information has been added on the many types of Parker-Kalon screws, along with well illustrated instructions on where and how to use them.

☐ **9. STEEL FORGINGS**—Basic operations of making a finished steel forging are covered with a great deal of pictorial emphasis in new book just issued by the National Forge & Ordnance Co. Purchasers of steel forgings should find this book of practical interest.

☐ **10. PLASTICS** — "1 Plastics Avenue" is title of booklet issued by General Electric Co., explaining the services that The Plastics Division of General Electric offers in materials selection, designing and production of plastics products.

☐ **11. POWDER METAL BEARING PARTS** —New 168-page Oilite Catalog of powder metal bearing parts is available from Chrysler Corporation. In a handsome format the book is complete with load charts, mechanical drawings, pertinent engineering data, and a section devoted to photographs and descriptive material on the complete line of Oilite products. Chrysler Corp., Amplex Div.

☐ **12. PUMCUPS** — These are precision-made composition cups for packing pistons of air and hydraulic cylinders as well as reciprocating pumps, and are used in cylinders installed in presses, hoists, rams, machine tools, etc., etc. They perform equally well in air, oil, water, glycerine, alcohol and other fluids. Pumcups are described in new bulletin issued by the Darling Valve & Mfg. Co.

☐ **13. BRISTOL COMPANY Products** — Instruments for Recording, Indicating and Controlling, valves, belt lacing and hooks, etc. COMPLETE list of all Bristol's products, trade names, and products classification list giving most of the headings under which the products properly fall, is available from Bristol Company in mimeograph form. Buyers will find this a handy reference.

☐ **14. GRINDING QUESTIONS** — "101 Grinding Questions Answered" is the title of portfolio guide to better grinding, issued by the Dayton Grinding Wheel Division, Simonds Worden White Co. It may help you answer some of the questions that arise in connection with buying grinding wheels.

☐ **15. MAGNETS** — "Sintered-Alnico Magnets" is the title of General Electric bulletin 3682B. There are five grades, each of which has different composition and magnetic properties. The magnets are available in a variety of shapes and sizes. The bulletin tells how they are made, their application, magnetic and physical properties, and gives "Information for Ordering." Standard forms are illustrated and described.

☐ **16. LEATHER PACKINGS** — Very interesting textbook and catalog on "The Design and Application of Hydraulic and Pneumatic Leather Packing", with revised tables and 32 pages of new material, is

Continued on page 12

PURCHASING 205 EAST 42ND ST., NEW YORK 17, N. Y.

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11 ☐ 12 ☐ 13 ☐ 14 ☐ 15 ☐ 16 ☐

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COMPANY _____

ADDRESS _____

CITY _____ STATE _____

7/45

FOUR PAGES OF "KNOW HOW"—10-12-14-16



***float**, n. 8. A file for smoothing.*
— Webster's Universal Dict.

The Nicholson Lead Float File removes stock from such extra-soft metal as lead, babbitt and pure copper by the "floating," or "smoothing," principle. Its extra-coarse, extra-short angle, single-cut teeth are practically a series of stubby "blades" which shear away the metal rapidly under ordinary pressure. Light pressure produces the smoothing effect.

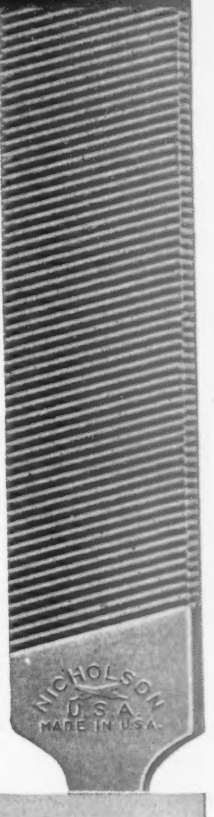
Industrial plants and machine shops use Nicholson or Black Diamond Lead Float Files on soft bearings, shims and molded parts. Plumbers and plumbing manufacturers use them on lead pipe fitting, solder joints, etc. Ship-builders use them in piping and plumbing installations requiring the use of lead or copper.

Name the job, we'll furnish the file

Nicholson — world's largest file manufacturer — is virtually a "clearing house" for file and filing information. Nicholson file engineers will undertake to "lick" any new filing problem involving new types of materials or special operating difficulties.

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"Know-How" Information, Continued

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now available from Chicago Belting Co. Two new products described are Vee Packing Assemblies and Double Acting Pump Cups. Several pages are devoted to packing sketches.

☐ **17. FILTER PAPERS** — Bulletin No. 67 describes American Filterpapers for use in Chemical Laboratories. Manufacturer states "The purity and uniformity of our papers are far ahead of those found in European product." Carl Schleicher & Schuell Co.

☐ **18. SAFETY SHOES** — Here's an interesting book on safety shoes. It's entitled "Let's use our heads and Save our Feet." Undoubtedly you are buying safety shoes for men and women workers, and you will find practical information in this book that will help you in your buying. The book, which contains 64 pages of text and illustrations was published by the Hy-Test Division of International Shoe Company.

☐ **19. DEFENSE PLANT CLEARANCE** — Production of various papers required in the Defense Plant Clearance Program is said to be simplified through the use of special die-impressed Mimeograph stencils. Details of the use of the stencils and explanation of procedure established by DPC Engineers is covered in illustrated folder entitled Mimeograph Brand Die Impressed Stencils for the Production of Defense Plant Clearance Papers, which is available from the A. B. Dick Company.

☐ **20. ELECTRONIC EQUIPMENT** — Purchasing Agents are invited to send for copy of catalog issued by Walker-Jimieson, Inc. covering radio and electronic equipment, which contains information and data on the most advanced types of electronic instruments, devices and tools. Products include industrial X-ray machines, comparator, test equipment, tube testers, photoelectric devices, die-less duplicating tools, and a variety of other equipment.

☐ **21. SEALSKIN** — Sample jar of this skin-protector compound will be sent to you by Cadet Laboratories. It is made to conform to the one type recommended by the U. S. Public Health Service as most efficient for skin protection against oils and solvents. It may be also placed in the nostrils. It is said to protect against water solvent cutting oils and coolants, prussian blue and fish oils, acids, caustics, alkalis, degreasing compounds, etc. Get your sample today.

☐ **22. INDUSTRIAL BRONZES** — Ampcoloy industrial bronzes, product of Ampco Metal, Inc., are described in bulletin 59, which contains photomicrographs, physical properties and chemical compositions of the Ampcoloy series. Among Ampcoloy alloys are aluminum bronze, high lead bronze, tin bronze, manganese bronze, beryllium copper, and high conductivity alloys.

☐ **23. NICKEL PLATING** — The Udylite Process of Bright Nickel Plating which eliminates buffing costs and "cut-throughs" and other buffing rejects, is described in 8-page bulletin. Nickel can be plated bright on complex shapes extremely difficult to buff. Process is said to make for high purity deposit and high speed plating. The Udylite Corp.

☐ **24. CLEANERS**—Klem Kleaners for rust removal, metal cleaning and degreasing, metal preparation for finishing, soldering and pickling and industrial maintenance are described in eight-page bulletin. Klem Chemical Works.

☐ **25. PICKLING** — "Efficient Pickling with Rodine" is title of Bulletin No. 13 just released by American Chemical Paint Co. It describes pickling process, Rodine and what it is and how it acts, and the Rodine process, suggested practice for pickling typical products. Also, appendex contains several practical tables.

☐ **26. TEMPERATURE CONTROLS**—Catalog 325 issued by Precision Scientific Co., contains 48 illustrated pages pertaining to constant temperature control cabinets, including variety of standard models as well as illustrations of cabinets and baths built to specifications. Standard cabinets include heated ovens, sterilizers, explosion proof ovens, vacuum ovens, etc., etc.

☐ **27. NON-MAGNETIC Uses of Manganese Steel** — Bulletin 1144-NM just released by the American Manganese Steel Division of American Brake Shoe Co. describes "Non-Magnetic Applications for Amsco Manganese Steel." Studies with illustrations show typical applications where non-magnetism and the ability to withstand shock and wear were equally vital factors in the selection of manganese steel. Austenitic manganese steel is described as an inexpensive but very strong and tough material for castings which must be substantially non-magnetic.

☐ **28. PLASTICS (Thermosetting) MOLDING** — Bulletin 640-A issued by Watson-Stillman Co. describes newly designed semi-automatic compression molding presses. Machines may be used for either straight compression molding or by the transfer method, and are available in capacities from 50 to 1200 tons.

☐ **29. INDUCTION HEATING** — Bulletin B6373 issued by Allis-Chalmers Mfg. Co., gives detailed information on the first standard mercury arc converters designed for induction heating operations in the 500—2000 cycle frequency range. As frequency changer equipment, the Excitron mercury arc converters have a conversion efficiency of 90% or better. Differences between the old way and the new way of heating and melting metals are summarized in quick-reading, illustrated form.

☐ **30. METAL BALLS** — Strom metal balls of chrome steel, brass, bronze, monel metal and stainless steel, are described and listed in four-page catalog. Strom Steel Ball Co.

☐ **31. SUCTION HOSE** — Construction of each of the six grades of suction hose for excavating and general utility service are described in new catalog section just issued by the B. F. Goodrich Co. Featured is the Spiralock hose in which fabric is locked around spiral wire insertion, which is recommended for suction and discharge pressures up to 30 pounds psi. Fittings for the various types are listed and described.

☐ **32. ALKALINE CLEANING COMPOUNDS** — Use of Dresinates in alkaline cleaning compounds has been issued by the Paper Makers Chemical Department of Hercules Powder Co. Dresinates are water-soluble salts of selected rosins available in dry and paste form. Dry Dresinates are substantially neutral while the pastes contain various amounts of free rosin and are available in solids content ranging from 60 to 90%. Suggested applications in cleaners and as emulsifiers are given.

☐ **33. ROUTERS** — Router with threaded motor casing, styled the Stanley-Carter RS4A router with micrometer adjustment is described in bulletin issued by Stanley Electric Tools. Motor casing turns in router base for accurate, quick and safe adjustment to exact depth of cut. Used in the base the router performs all routing operations in wood and plastics. By simple adjustment it can be used as a shaper.

☐ **34. STORAGE TANKS, GAS Holders, etc.** — Comprehensive picture story of the fabrication and erection of gas holders, storage tanks, processing vessels and other structures for the gas, petroleum, chemical and food industries, is contained in bulletin G-45 of the Stacey Bros. Gas Construction Co.

Continued on page 14

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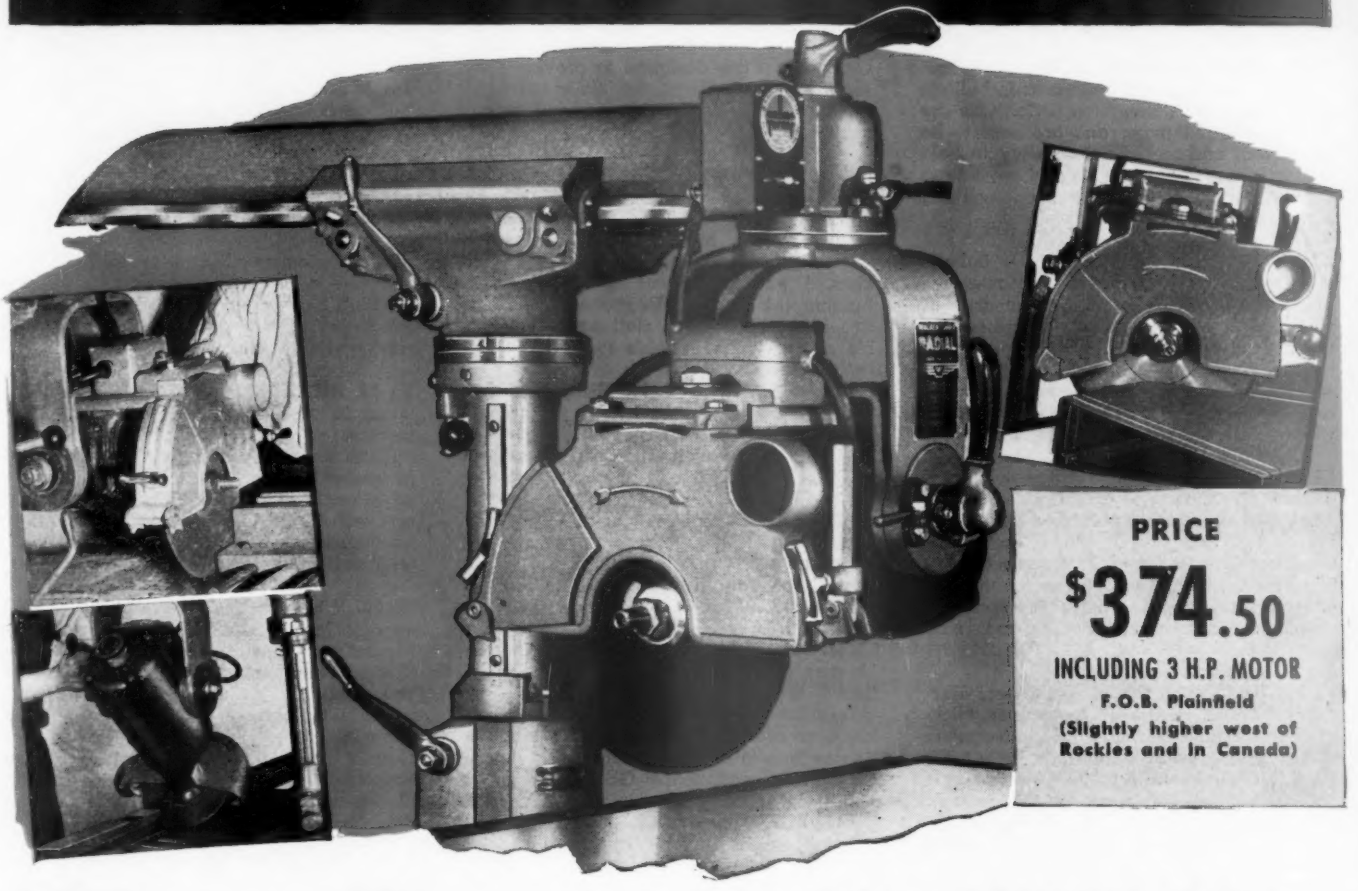
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THIS *Universal Head* SIMPLIFIES COMPLICATED CUTTING OPERATIONS



PRICE
$374.50
INCLUDING 3 H.P. MOTOR
F.O.B. Plainfield
(Slightly higher west of Rockies and in Canada)

Walker-Turner METAL-CUTTING RADIAL MACHINE

The head on a Walker-Turner Metal-Cutting Radial Machine can be quickly set to cut at any angle. Cuts wide metal shapes. Will dado, trench, miter, even operate with motor in vertical position. Patented Walker-Turner Geared Motor is shock-proof, gets shaft closer to work, makes deep cuts with smaller blades than in conventional motors. Blade feeds through work with shorter cutting arc and less frictional heat. Operator gets clear view of work, no interference from overhanging arm Write today for complete information.

WALKER-TURNER COMPANY, INC., Plainfield, New Jersey

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MACHINE TOOLS

DRILL PRESSES — HAND AND POWER FEED • RADIAL DRILLS
METAL-CUTTING BAND SAWS • POLISHING LATHES • FLEXIBLE SHAFT MACHINES
RADIAL CUT-OFF MACHINES FOR METAL • MOTORS • BELT & DISC SURFACERS

"Know-How" Information, Continued

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☐ **35. FLAT GROUND STOCK** — Sample accompanies bulletin describing non-deforming flat ground stock developed by Simonds Worden White Co., for jigs, gages, fixtures, tools, punch and die facings and small precision parts. It is known as "Air-Tru" and is available in all standard stock sizes.

☐ **36. DIESEL ENGINE OILS** — "Vital" Diesel engine oils are described in bulletin released by E. F. Houghton & Co. Oils are of the detergent type, and are said to be long-lived, and to have the ability to hold contaminants in suspension and preventing them from being deposited on working surfaces.

☐ **37. 30-IN. DISC GRINDER** — Bulletin B-1 describes the Kindt-Collins Master hydraulically operated 30-inch disc grinder, which will grind metal, wood and certain types of plastic material. Hydraulic controls eliminate all gears, worms and jack screws. There are two models, the 30-L and the 30-H, the latter for heavy duty work. Kindt-Collins Co.

☐ **38. AUTOMATIC SHAPER** — Line of automatic shapers is described in well-illustrated booklet just published by Onsrud Machine Works, Inc., which shows all machines from 44" to 112" turning capacities. Production is said to be feaured by ease of setup, elimination of spoilage, simplified feed requirements and safe operation.

☐ **39. THICKNESS GAGE** — General Electric thickness gages for measuring thickness of nonmagnetic material on magnetic iron or steel, are described in bulletin GEA 4363. Measurement is made from one side of coatings without marking the surface. Also measurements can be made in the center of large sheets. Typical applications include paint, babbit, silver and bronze linings, copper plate on webbing of gears, sheets of glass, plastics, paper, brass, lead, etc., etc.

☐ **40. MATERIALS HANDLING** — Rex apron and pan conveyors for handling coal, coke, ore, cement, rock, chemicals, bulk parts and other materials, are described in bulletin No. 462 just released by Chain Belt Company. Bulletin contains design details, cross sections, capacity tables, and specifications tabulated for quick comparison.

☐ **41. ALLSPEED DRIVES** — Worthington Allspeed Drives providing instantaneous variable speed control are described in bulletin just released by Standard Products Div. of Worthington Pump & Machinery Corp. They are designed to provide peak production speed at all times and for changing speeds quickly, smoothly and positively.

☐ **42. ALL PURPOSE SANDER** — Sand-O-Flex is name of new all-purpose sander for sanding, deburring, finishing and polishing small wooden, metal, plastic and rubber parts "quickly and effortlessly". This brush backed sanding wheel is described in bulletin released by Exactone Tool & Die Co. It can be used on stationary and flexible shafts, or on portable tools.

☐ **43. DEBURRING & FINISHING** — Bulletin describes Roto-Finish, a mechanical process for de-burring and finishing metal parts ranging in weight from a few ounces to 75 pounds. It is said to produce a fine surface for plating. There are two processes, Wet, and Dry. Savings of 40 to 85% in time and labor costs are reported. The wet and dry machines, and Junior for small jobs, are illustrated. The Sturgis Products Co.

☐ **44. MOTORS for Hazardous Locations** — "Motors and Control for Hazardous Locations" is title of Bulletin GEA 4131 released by General Electric Co. Hazardous locations are defined, along with information on how to apply explosion-proof equipment, and description of GE equipment.

☐ **45. BOXES — CASES** — "The 5th and What it Means to you" is title of booklet issued by General Box Co., which describes General Corrugated box, corrugated crate, cleated corrugated box, wirebound crate, stitched panel crate, nailed box, pallet, and beverage cases.

☐ **46. RIVNUTS** — Featured by 10 pages of data on tests, new 40-page Rivnut data book has been published by the B. F. Goodrich Company. The Rivnut is a one-piece internally threaded and counterbored tubular rivet which can be headed or upset from one side with a simple tool. It is styled the only one-piece blind fastener which can be used as a blind rivet, nut plate for attachment, or both at once.

☐ **47. KNITTED WIRE TUBING** — Circular describes Titchener Wire tubing which is "actually knitted from a single wire." It is available in various diameters and lengths, and varying degrees of flexibility. Tubing is made from spring steel, spring stainless, and spring bronze wire, and can be made from wire selected to resist heat, corrosion or wear. E. H. Titchener & Co.

☐ **48. SEAMLESS TUBING** — Bulletin 600 just released by Seamlex Co. gives complete data on new Seamlex with Type "W" fitting — a welded or brazed type suitable for high temperatures and vibration. Seamlex with Type W fittings is available in any standard size.

☐ **49. INFRADRED OVENS** — Prefabricated infraded ovens known as the Raymersion ovens, are described in detail in bulletin issued by Trumbull Electric Manufacturing Co. Ovens are so standardized as to permit widest range of utility, in size of oven, for any type of production, any heat capacity and any handling method, with uniform heat application.

☐ **50. VIBRATION CONTROL** — Control for drop hammers, punch presses and other impact machinery is described in Catalog H-600, Korfund Vibration Control, published The Korfund Co., Inc. Methods for suspending entire concrete foundation blocks on vibration isolation equipment are explained and illustrated. For machines which do not require concrete inertia blocks, a simpler type of installation is described.

☐ **51. MUSIC AT WORK** — This is title of booklet issued by Executone Communication Systems which explains the merits of music in industrial plants from the standpoints of contented employees, reducing absenteeism, overcoming fatigue, etc.

☐ **52. TUBING, FITTINGS, PIPING**—Weldco corrosion resistant tubing, fittings and fabricated piping are illustrated and described in Bulletin T145 issued by The Youngstown Welding and Engineering Co.

☐ **53. MOBILE CAFETERIA** — Printed matter describes AerVoid mobile cafeteria and AerVoid vacuum insulated hot food, soup and coffee carriers for inplant feeding. Industrial feeding Envelope BB-2 contains full story of AerVoid's for war-plant food servicing. Vacuum Can Company.

☐ **54. PAINTING STRUCTURAL STEEL** — Deoxidine No. 34 for conditioning structural steel for painting is described in Technical Service Data Sheet No. 3-2-34-2, issued by American Chemical Paint Co. It is a ready-to-use chemical used to treat and condition structural steel that has been freed from mill scale and rust to prepare it for painting.

☐ **55. OPEN FEED WATER HEATERS** — Interesting bulletin treating on open feed water heaters of various types, publication

Continued on page 16

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7/45

FOUR PAGES OF "KNOW HOW"—10-12-14-16



A different Johnny is marching home

For one thing, he won't parade up Main Street the way you always expected. He doesn't much care for the ticker tape and bunting. By day coach or sleeper, Johnny is coming home with the experiences of battle vivid in his memory.

He may be back for the job he left when the call to colors came. You know you'll be proud and happy to have him with you.

But it's a *different* Johnny. Not quite the happy-go-careless guy you knew before. He's older for one thing. More thoughtful. You may even find him brusque or restless now and then.

Why?

When a man's been through the hell and pandemonium of battle . . . or the terrible boredom of lonely, inactive outposts, it's hard to readjust to a paradise of peace and plenty. It will take Johnny time to settle in a civilian groove, and the call's on you for friendly tact and patience.

Pull with Johnny. Give him time to come through at home, as he came through on the fighting front. Play ball with Johnny. He made a swell soldier. And he's going to make a swell civilian.

MACWHYTE COMPANY, 2918 Fourteenth Avenue, Kenosha, Wisconsin . . . manufacturers of "Hi-Fatigue" Aircraft Cable, "Safe-Lock" Cable Terminals, Aircraft Tie-Rods, Braided Wire Rope Slings, and Wire Rope for all requirements.

"Know-How" Information, Continued

USE COUPON ON EACH PAGE

4091, has best been released by Cochrane Corp. It illustrates and describes different types of tray heaters for various applications, the jet heater, V-notch metering heater, and the convertible tray type of heater which by the insertion of additional trays can be converted into a deaerator. Cochrane Corp.

☐ **56. THERMOSTATIC CONTROL BOOKLET** — Seven types of bi-metal thermostats to fill a wide range of applications for safe, accurate, automatic control of temperatures up to 650 deg. F are described in new booklet announced by Westinghouse Electric Company. Characteristics and capacities of each unit are discussed and tabled for easy selection.

☐ **57. HARD FACING METAL** — New non-ferrous hard-facing metal named Fanweld, intended for acetylene torch application to steel, is described in circular issued by Fansteel Metallurgical Corp. It is said to possess marked resistance to abrasion, heat, impact and erosion. It contains tantalum-columbium carbide which imparts self-lubricating action. Properly applied it "wets" steel surfaces readily without use of flux. Surfaces as thin as .010" can be applied. Fanweld is made in 3/16 and ¼" diameter rods in 14" lengths.

☐ **58. MACHINE CENTERS** — Stock tool bulletin No. 137 describes Tungsten Carbide Tool company's line of carbide tipped machine centers. Centers are listed in Morse Taper numbers 1 through 5; Brown á Sharpe 7 through 11; Jarno 4 through 12. All centers listed are tipped with Carboloy Grade 44A carbide.

☐ **59. MILLING MACHINE ATTACHMENTS** —Eight-page publication No. M-1382 describes Cincinnati Milling Machine Attachments, which pave the way for eliminating expensive fixtures, increasing operating efficiency, providing more operations per set-up, keep idle machines working, reduce work spoilage, etc. Cincinnati Milling and Grinding Machines Inc.

☐ **60. SILICONES** — Circular describes Dow-Corning Silicones, the new heat stable, organo-silicon oxide polymers which are available in many forms. The products include fluids for high and low temperature use with little viscosity change, chemically resistant greases, insulating resins and lubricants. These materials are characterized by their temperature stability, inertness, waterproofness, and excellent dielectric qualities.

☐ **61. TWIST DRILLS** — Handy table of decimal equivalents of Twist Drills printed in pocket size card form is available from Manufacturers Screw Products. Table shows the diameter for each size of twist drill whether designated by numeral or letter size.

☐ **62. RUSTING BELOW WATER LINE** — Electro Rust Proofing System of Cathodic Protection, for the prevention of rusting below the water line in elevated steel water tanks, reservoirs, pressure tanks, clarifiers, flocculators, softeners, hot water tanks, and other submerged metals is described in folder released by Electro Rust-Proofing Corporation.

☐ **63. CONTROL OF Liquids & Gases** — Asco Solenoid valves for the automatic and remote control of the flow of liquids and gases are described in Circular 200 issued by Automatic Switch Co.

☐ **64. SANITATION** — Twenty-page booklet contains formulas and full directions on use of Oakite Tri-San for deodorizing, disinfecting and cleaning. Tri-San is odorless itself and does not disguise one odor by making over with another. It is said to destroy even the most lingering, obnoxious odors. Oakite Products, Inc.

☐ **65. ACID-PROOF CEMENT** — Booklet describes Penchlor Acid-Proof Cement, a self-hardening sodium silicate type of cement of exceptionally long life, which is unaffected by all acids—hot or cold—dilute or concentrated—except hydrofluoric acid. Used as a motar it adheres strongly to brick, glass, steel, lead, rubber and asphalt. Special Chemicals Div., Pennsylvania Salt Mfg. Co.

☐ **66. VERSATAL PUMPS** — These are pumps developed by Alemite for dispensing and applying paints, lacquers, mastic, sealers, insulating materials, etc. Pumps will handle one to six outlets or spray heads. They are described in bulletin about "Alemite Versatal Material Pumps". Alemite, Division of Stewart-Warner.

☐ **67. INSULATING BRICK** — "Five Insulating Brick of Prime Importance to Refractories Users" are described in new bulletin issued by Harbison-Walker Refractories Co.

☐ **68. FITTINGS** — Flex fittings for use with all types of seamed and seamless metal tubing including copper, aluminum, thin-wall steel (such as Bundy), Monel, stainless steel, Everdur, etc., weher there is major vibration or minor tube movement, is available from Imperial Brass Mfg. Co. In the Flex fitting the tubing is cushioned against damage by an elastic sleeve. Joints are said to be virtually indestructible.

☐ **69. GRINDING WHEELS and Shapes** — Bulletin describes Stermount Wheels and Shapes which are available in vitrified and resinoid bonds, and ready for use with precision or portable equipment. Kinds, sizes and shapes are illustrated. Sterling Grinding Wheel Division.

☐ **70. V-BELTS** — New catalog sections on its fractional horsepower and multi-V belts have been published by the B. F. Goodrich Co. The sections describe construction and list standard belt dimensions and interchaneability tables.

☐ **71. STEEL FABRICATION** — Bulletin describes Industrial Steel Fabrication facilities of Marine Fabricator Co. — precision flame cuting, welding, rolling, shearing, machining, hydraulic bending, etc.

☐ **72. FLUID HANDLING** — Catalog 45 describes Zurn fluid handling equipment—devices for the protection of operating equipment connected with the piping systems utilized in industrial, processing and power plants. It features a complete line of suction and yressure line fittings, strainers and remove valve control assemblies, interceptors, etc. J. A. Zurn Mfg. Co.

☐ **73. ELECTRONIC INSTRUMENTS** — Eight-page condensed catalog titled "Norelco Electronic Products" is announced by North American Philips Co. Tubes and crystals, Industrial X-Ray equipment, metallurgical products and medical X-Ray equipment are illustrated. Film-type X-ray diffraction equipment and new Geiger-Counter X-Ray spectrometer are described in detail.

☐ **74. HIGH VOLTAGE D-C Supply**—Bulletin GEA 4317 describes High-Voltage D-C Supply metal enclosed equipment, which is described as a convenient and reliable source of high voltage d-c power for applications such as testing of electric equipment, precipitation, induction heating, radio, and miscellaneous industrial and electronic applications which require high voltage d-c. General Electric Co.

☐ **75. DoALL SAW EEZ** — Circular describes Saw EEz, collodial graphite lubricant which is compounded to withstand extreme pressures. In the sawing of metals it minimizes scoring of the saw blade, and its lubricating action is said to tend to produce a smoother cut by diminishing vibration during the sawing operation. It is easily applied to band saws. The DoALL Company.

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FOUR PAGES OF "KNOW HOW"—10-12-14-16

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A size and type for all cuts in wood up to 4⅜ inches deep, and for many cuts in metal, compositions and all masonry products.



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A size and type for all drilling up to ¾ inch in steel and 2 inches in hard wood. Exceptionally compact and powerful.

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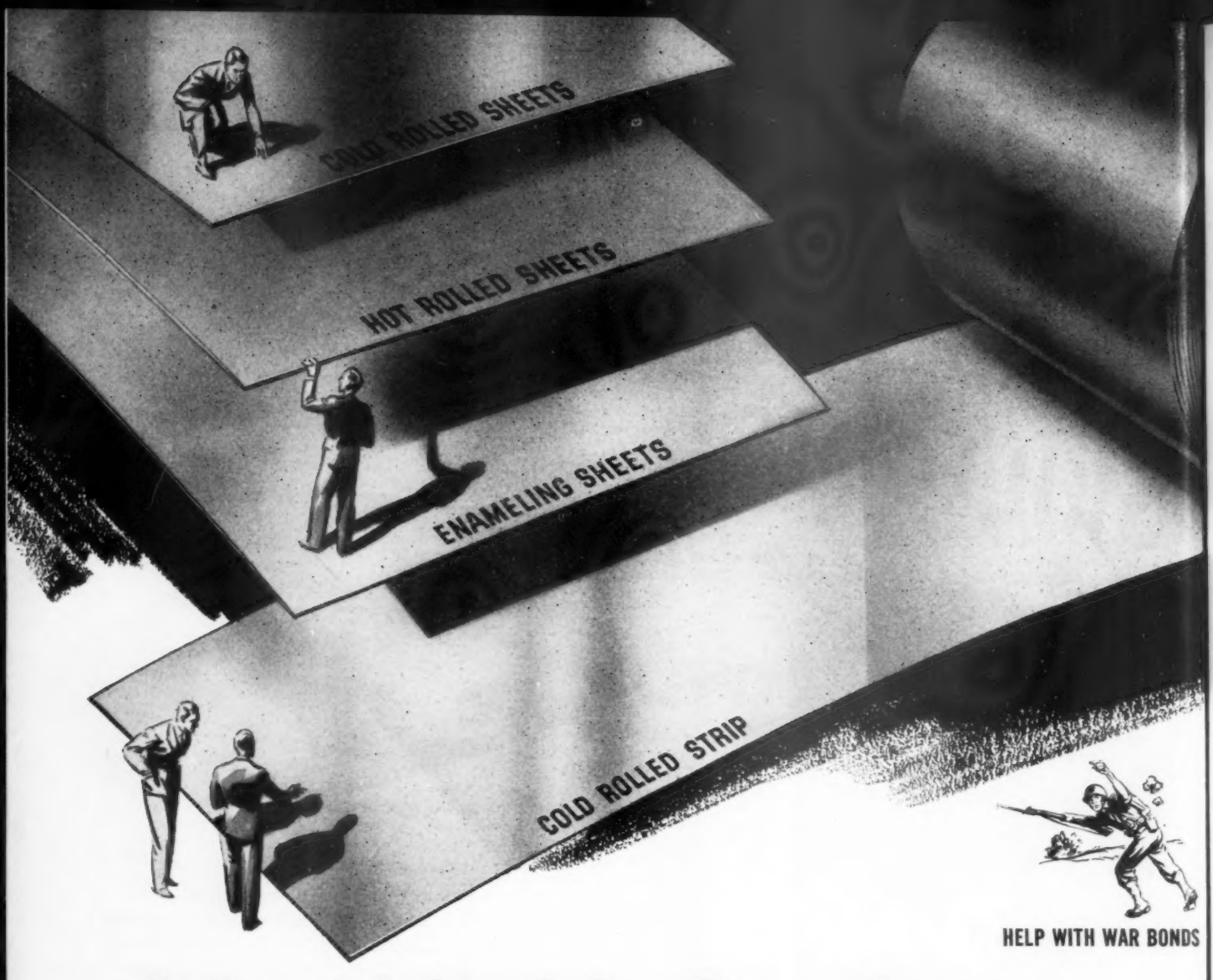
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HELP WITH WAR BONDS

A Special Steel for Every Purpose

Inland research and product development have more than kept pace with demands for better flat rolled steel products. They have consistently anticipated manufacturers' needs —giving them an infinite variety of steels that fully meet the requirements of modern design and manufacturing methods.

There are Inland hot rolled sheets and strip, and cold rolled sheets and strip, that can be easily formed, deep drawn, spun, welded, and beautifully finished—steels that make stronger, more durable and more attractive products.

Inland specialists are ready to help you select the right steel for war products and for products you plan to make after the war. They are highly skilled in the making of special steels for every particular purpose. They are thoroughly grounded in shop methods, and in consumer needs and desires. You are invited to take advantage of their services.

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  - Deoxidized sheets
  - Pickled sheets
  - Electrical sheets
  - Blued Stovepipe stock
- Cold rolled strip
- Cold rolled sheets
- Enameling sheets
- Galvanized sheets
  - Commercial coating
  - Tite coated
  - Form-cote sheets
  - Extra heavy coated
  - Paint-Tite sheets
  - Zinc alloy sheets
- Copper alloy steel sheets
- Tin plate, hot dipped and electrolytic
- Manufacturing terne plate
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INLAND STEEL COMPANY

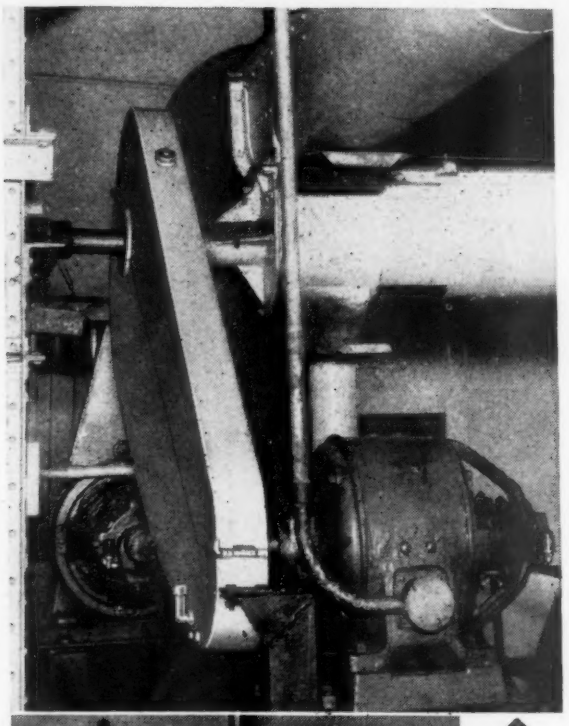
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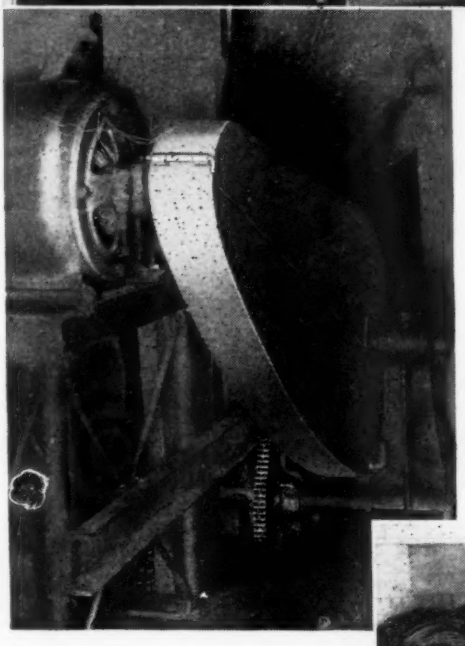
MODERNIZING POWER TRANSMISSION WITH *Silverstreak*

SILENT CHAIN DRIVES

After Eight Years of Continuous Operation These Drives Are Still As Efficient As When Installed - - - - - - - - - -



There are seven screw conveyor drives similar to these two.



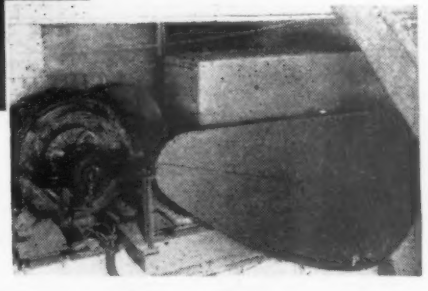
Four silent chain drives operate the malting drums. Note Link-Belt roller chain second reduction.

An important part of the modernization program put in effect in 1937 in a Wisconsin malting plant, was the installation of Link-Belt Silverstreak silent chain drives. Wherever one looks in this plant, he sees not one, but several of the distinctive casings, enclosing quiet, efficient chains, driving elevators, screw conveyors and malting drums. A few of these drives are illustrated. The efficiency of Silverstreak silent chain drives gives precise control to the quality of the product. Their economy, (low first cost, negligible upkeep and long trouble-free service) is reflected in the profitable operation of the plant.

With conversion and modernizing in your immediate or future plans, be sure to give Link-Belt Silverstreak silent chain drives full consideration.

LINK-BELT COMPANY

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Elevator drive using Silverstreak silent chain for first and second reduction.

Send for Silent Chain Data Book No. 125 for full engineering and application data.

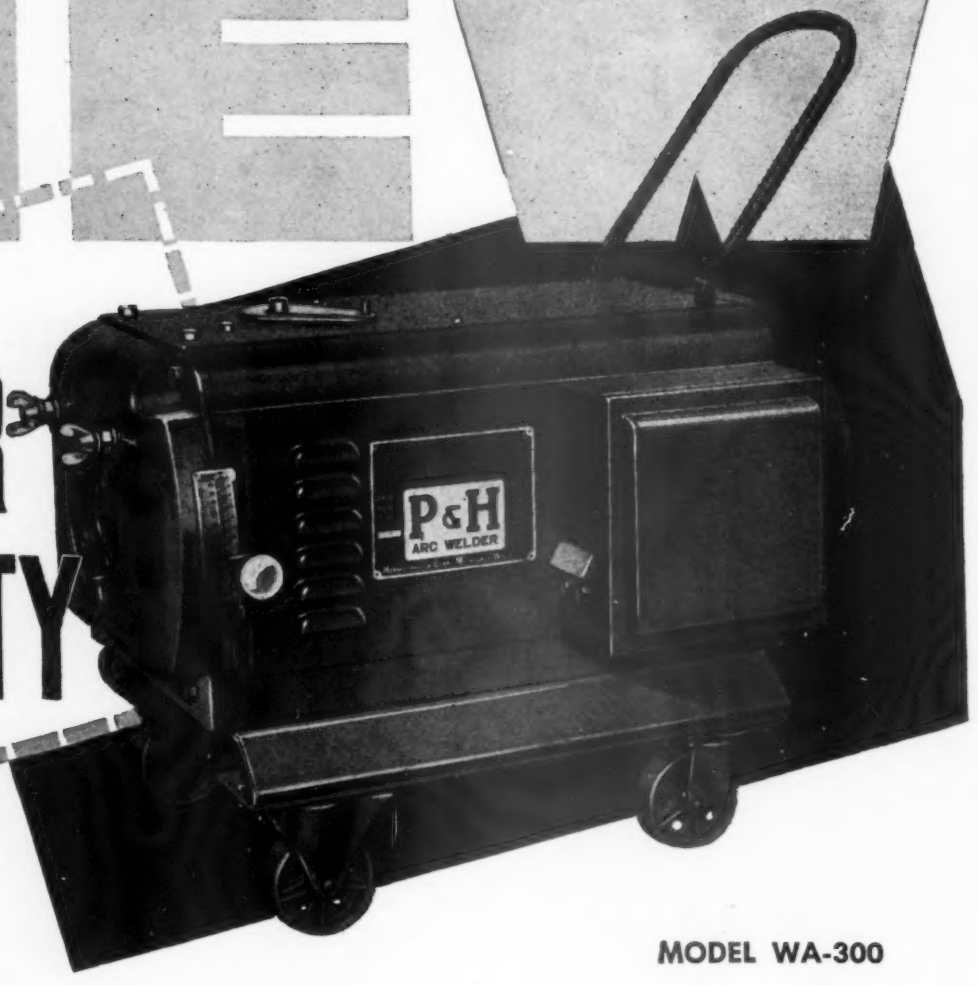




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LARGER CAPACITY

P&H



SQUARE FRAME WELDER WITH WSR (WELDING SERVICE RANGE) FROM 60 TO 375 AMPERES

MODEL WA-300

Built in response to popular demand, this new machine incorporates all the advantages of P&H's unique Square-Frame design. Here's simple construction, with but two major parts . . . parallel operation, (with dual mounting of machines you can handle higher amperage needs) . . . single control for any desired welding heat . . . "Visi-matic" calibration which enables you to select, instantly, the right current for each of the three classes of electrodes—high, medium, or low voltage.

Now — these added features:

- **POLARITY REVERSING SWITCH**
- **REMOVABLE STATOR—for easier inspection and servicing**
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- **WEATHER-PROOF CONSTRUCTION**

P & H's Square Frame design—proved by over 70 million production hours—assures you of reliable operation for many years to come. And WSR (Welding Service Range) ratings give you the actual usable welding current the machine will deliver from minimum to maximum.

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TO GET YOUR "TEETH" INTO!

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GARGOYLE Lubricants

for Correct Lubrication

SPECIFICALLY, this drawing shows a new development to protect gear teeth, and keep them biting into your war jobs. In a broad sense, it represents the advanced thinking that's going into the protection *of all your machines.*

That protective film you see on the gears is a new lubricant by Socony-Vacuum. It pours like oil. Yet, once on the gears, it changes to a heavy, tacky and tough film that cushions shock, guards against wear, pays off in smooth production.

With Socony-Vacuum's Complete Lubrication Service, you get the newest, most practical lubricants for every gear, bearing and cylinder in your plant. Yes, and you also get all of the extra benefits listed below to assure peak machine efficiency.

Get this complete Service...Now!

SOCONY-VACUUM OIL CO., INC. and Affiliates: Magnolia Petroleum Co., General Petroleum Corp. of Calif.

Socony-Vacuum's 5 STEPS to Lower Production Costs for You!

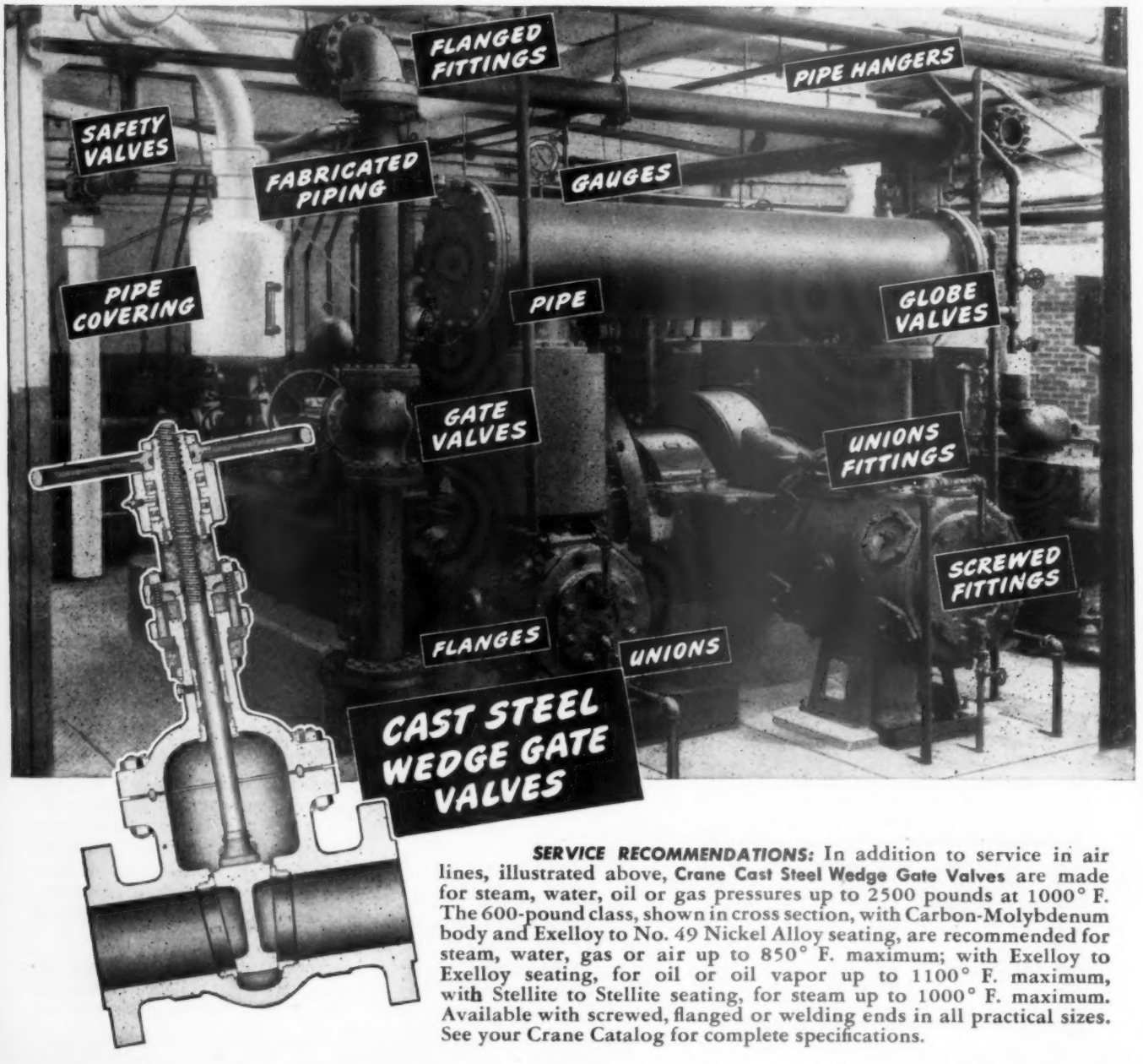
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Supplying everything necessary for any piping system is the job of your Crane Branch or Wholesaler. This single source offers the world's greatest selection of piping materials—in brass, iron and steel. Uniform quality in all materials—backed by single responsibility—helps assure the best installation. By using Crane *complete* piping materials service, you speed deferred replacements—keep piping performance at its best. Below is an example of the completeness of the Crane line—in Cast Steel Wedge Gate Valves.

Steam-Driven Air Compressor

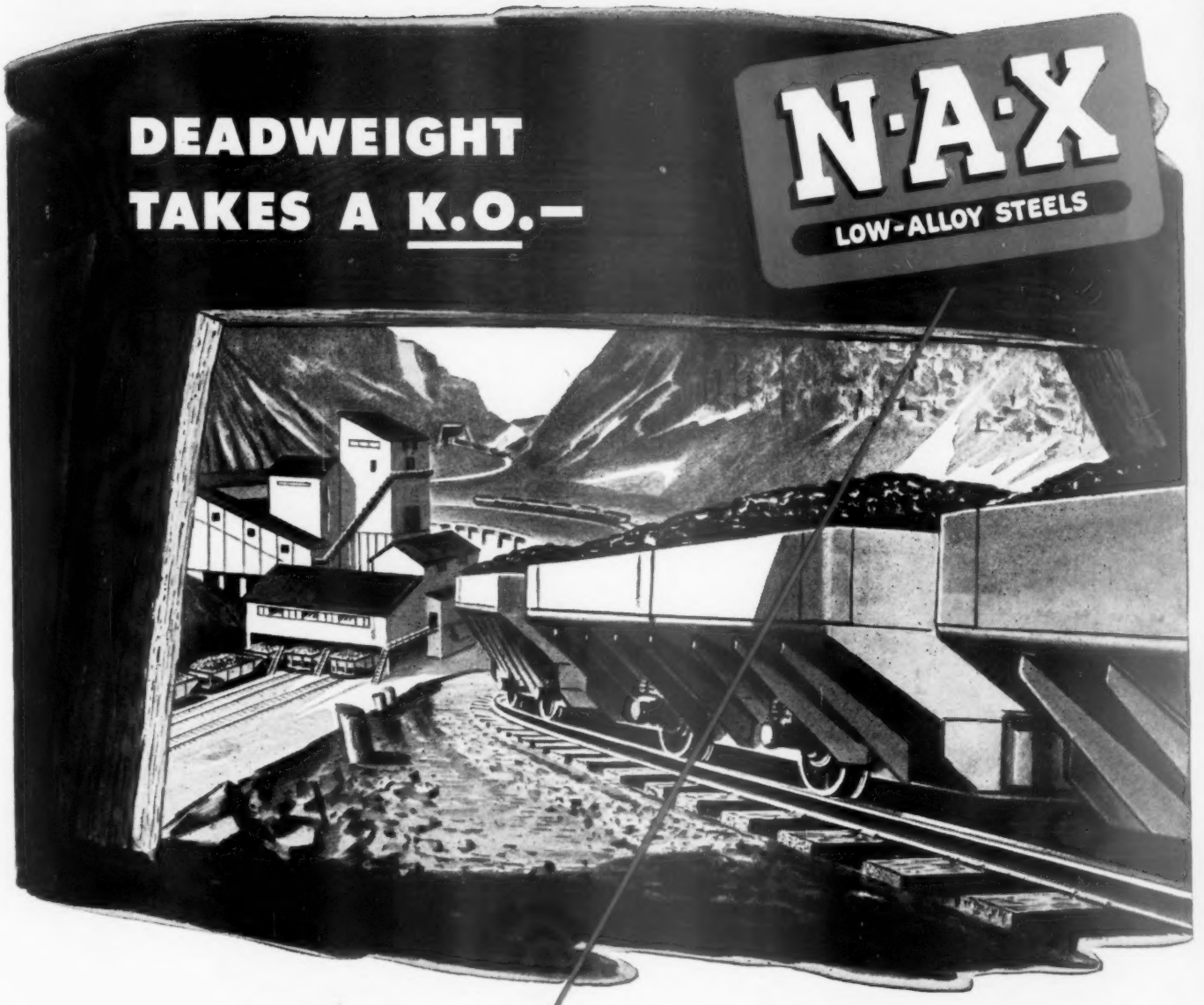


SERVICE RECOMMENDATIONS: In addition to service in air lines, illustrated above, **Crane Cast Steel Wedge Gate Valves** are made for steam, water, oil or gas pressures up to 2500 pounds at 1000° F. The 600-pound class, shown in cross section, with Carbon-Molybdenum body and Exelloy to No. 49 Nickel Alloy seating, are recommended for steam, water, gas or air up to 850° F. maximum; with Exelloy to Exelloy seating, for oil or oil vapor up to 1100° F. maximum, with Stellite to Stellite seating, for steam up to 1000° F. maximum. Available with screwed, flanged or welding ends in all practical sizes. See your Crane Catalog for complete specifications.

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In N-A-X low-alloy steels, manufacturers of mining equipment have what it takes to *knock out deadweight* in the design of cars, elevators, conveyors, tipples, screens and stripping shovels.

It's the old "one-two punch" proposition. N-A-X High-Tensile provides the extra strength in stressed members to permit more efficient design, lighter construction. N-A-X 9100 Series steels do the same for constructional parts that call for accurate heat-treatment, with abrasion-resistance an important factor.

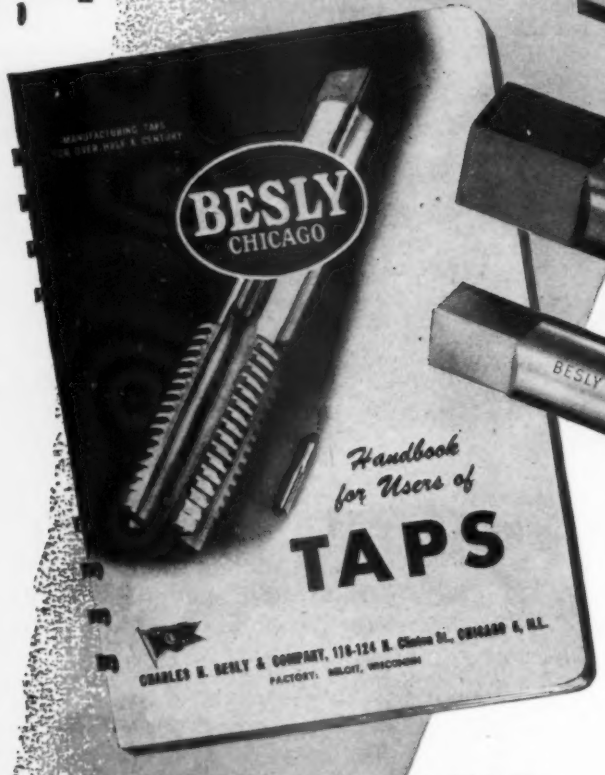
Take advantage of the great strength, exceptional ductility, good corrosion-resistance, excellent weldability and high resistance to impact, wear and fatigue that these fine-grained N-A-X low-alloy steels offer. Put N-A-X High-Tensile and N-A-X 9100 Series steels on the job to cut down deadweight, step up payload and increase the life of your equipment.

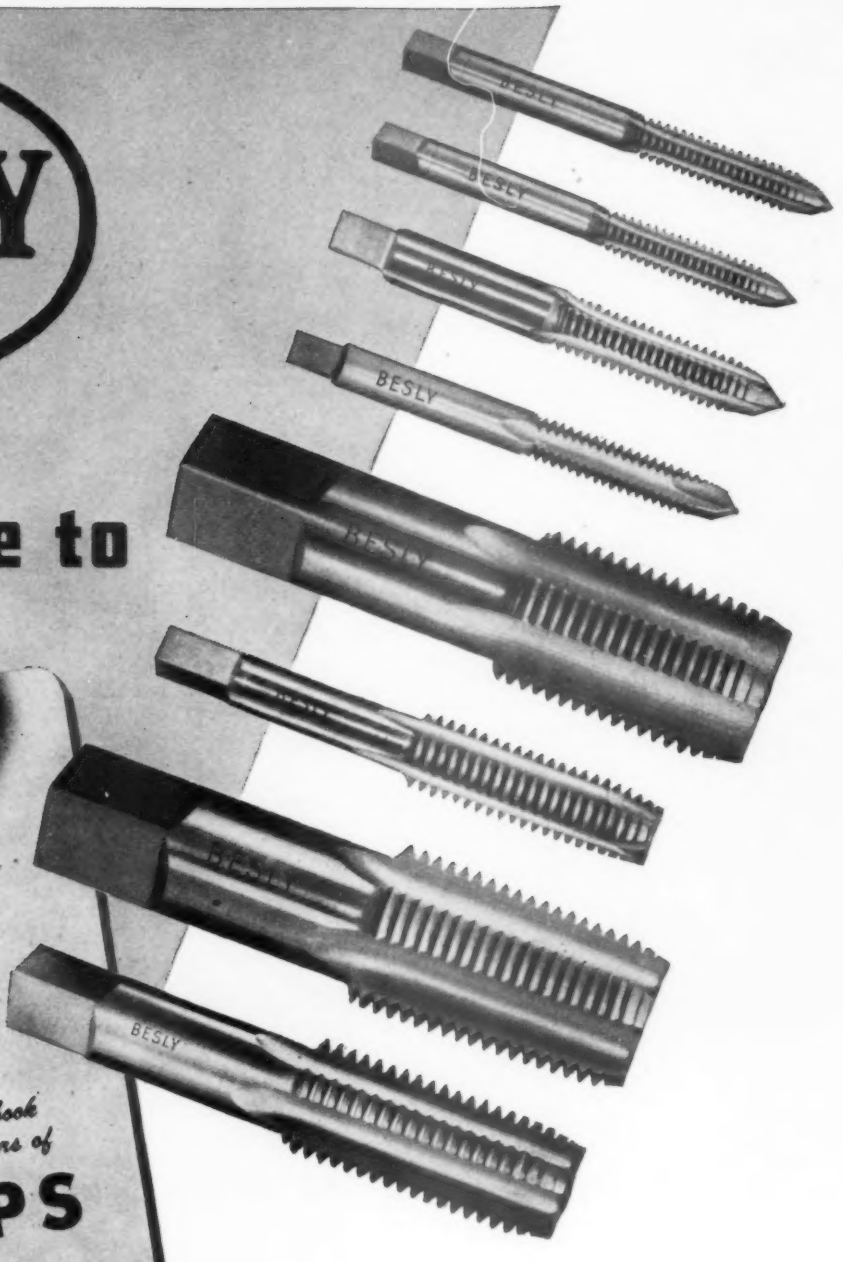
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Offers This New Service to Tap Users





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A PLASTIC STORY THAT RINGS THE BELL

● Here's a fire alarm box cover that rates a second look. And its good looks are more than skin-deep.

Yes, its bright red color goes all the way through . . . it never needs to be painted—a wipe with a rag is all the maintenance it will ever require. And its crisp lettering is molded right in.

G. E.'s complete plastics service cooperated with the engineers to design, build the mold, and deliver finished covers to the American District Telegraph Company.

So successful is this cover design that ADT shop people do not have to do a single bit of machining—they merely assemble it into the finished box. Once again a plastic part saves time . . . saves weight . . . saves machining . . . saves maintenance.

General Electric's *complete* plastics service is available to all industry. If you have a plastics problem, you can get the answer from G. E.—world's largest manufacturer of plastics parts. Write to Plastics Divisions, General Electric Company, No. 1 Plastics Avenue, Pittsfield, Massachusetts.

Hear the General Electric radio programs: "The G-E All-Girl Orchestra" Sunday 10 p. m. EWT, NBC. "The World Today" news every weekday 6:45 p.m. EWT, CBS "G-E House Party" every weekday 4 p. m. EWT, CBS.

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G-E Complete Service—Everything in Plastics

Backed by 51 years of experience. There is nothing new about plastics at General Electric. We've been designing and manufacturing such products ever since 1894.

G-E Design and Engineering Service. Our own industrial designers and engineers work together. Result: plastics parts that are both scientifically sound and good-looking.

G-E Mold Service. Fully equipped toolrooms. Skilled craftsmen with an average precision mold experience of 12 years. G-E molds are chromium plated for longer life.

G-E Quality Control. Our plastic products may pass through as many as 160 inspections and analyses. Negligible Army-Navy rejections.

G-E Research works continually to develop new plastics materials, processes, applications.

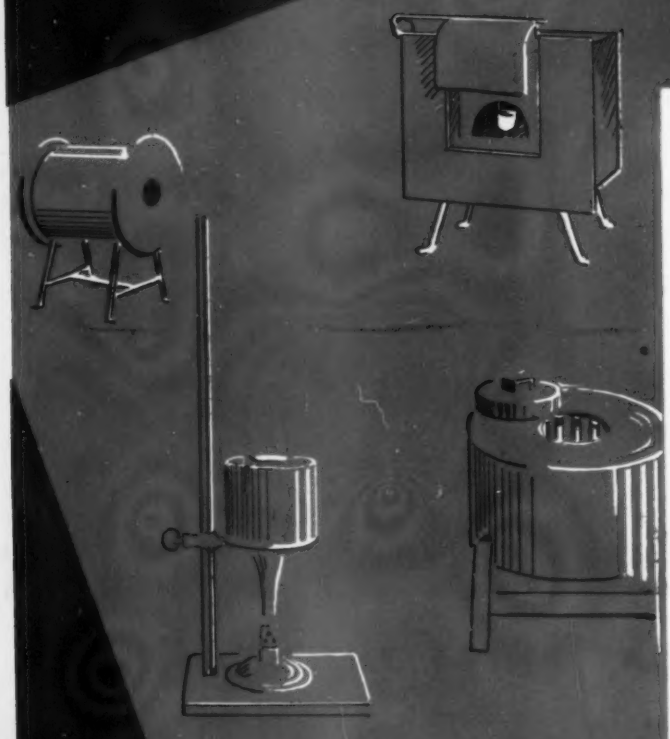
G-E Manufacturing Facilities are available for all types of plastic parts—for compression, injection, transfer, extrusion cold molding, for both high and low pressure laminating, and fabricating.

GENERAL ELECTRIC

CD 45-A1

BUY WAR BONDS

NEW! Pure Oxide Refractories by NORTON



WITH the manufacture of a line of Pure Oxide Refractories, Norton Company is opening new fields for high temperature research. Refractories made from unbonded oxides (of aluminum, beryllium, thorium, magnesium and zirconium) can be used at temperatures up to 2800° C. For more than 25 years, Norton has been pioneering in the development of high temperature refractories: bricks, grain, cements, special shapes; tubes, cores and muffles; laboratory ware.

Pure Oxide Refractories will advance research and development of high melting metals and alloys for industrial progress.

NORTON COMPANY
Worcester 6, Massachusetts

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NORTON REFRACTORIES



IF YOU ORDER BRASS *and copper products in any form, you'll want a copy of the new "Chase Dictionary of Brass and Copper Terms." This informative 92-page book describes—in brief, non-technical language—not only mill and warehouse products, but also semi-fabricated and finished products. It will help you greatly in the buying or specifying of brass and copper, enabling you to avoid misunderstandings and delays caused by using incorrect terminology. Write today for your complimentary copy of this Chase DICTIONARY. Address Dept. P-7*

FIRE CRACKING

BULL RING ROD

RANDOM LENGTHS

PINION TUBE

HARDNESS NUMBER

NICKEL SILVER

SCALING

GATE

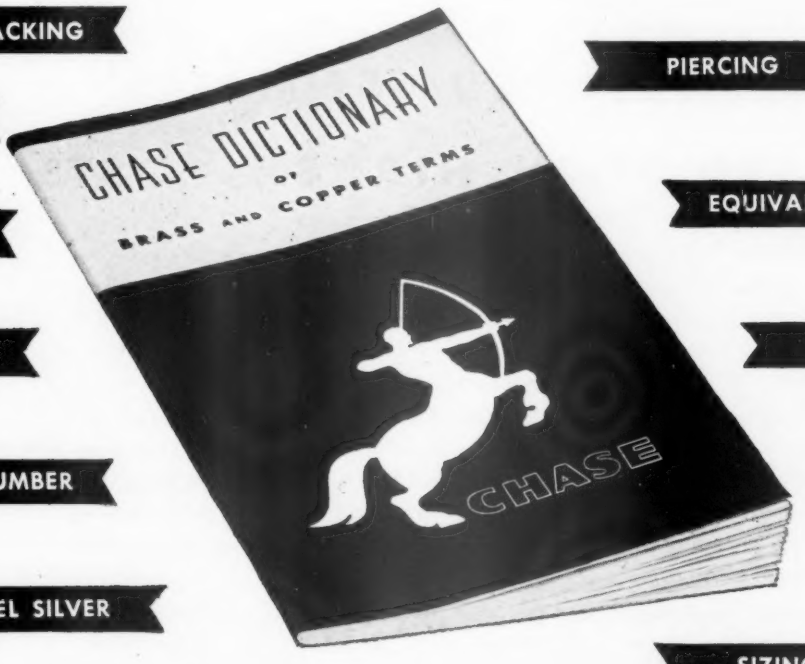
PIERCING

EQUIVALENT ROUND

BULGING

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SIZING





CHASE BRASS & COPPER CO.

—Incorporated—

Waterbury 91, Connecticut

SUBSIDIARY OF KENNECOTT COPPER CORPORATION

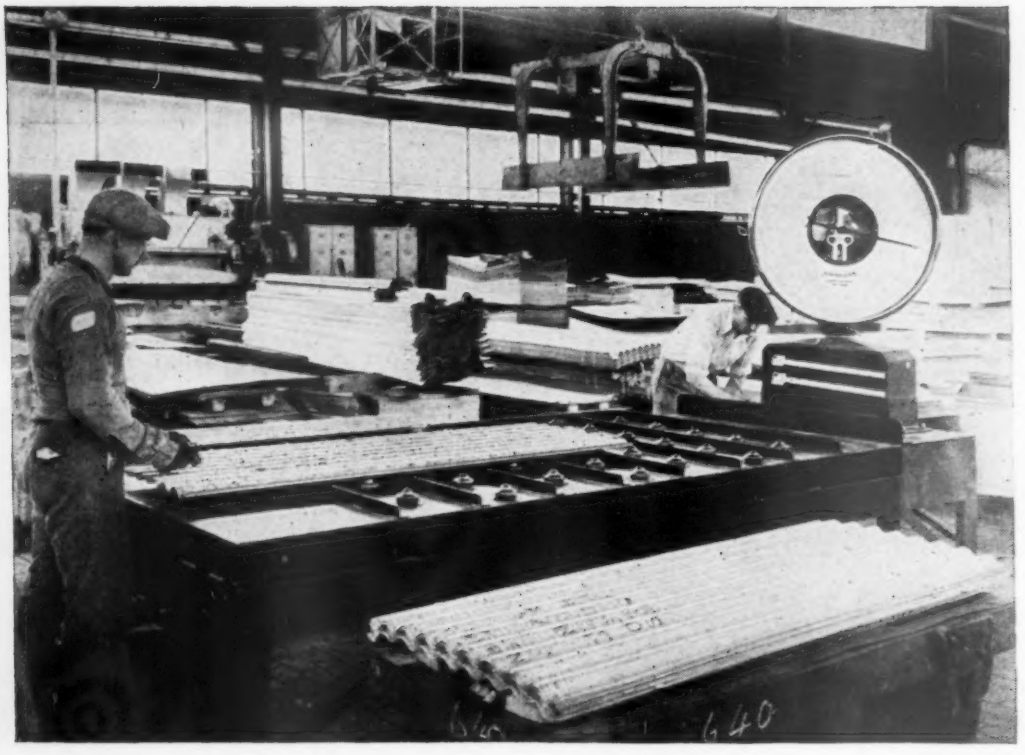
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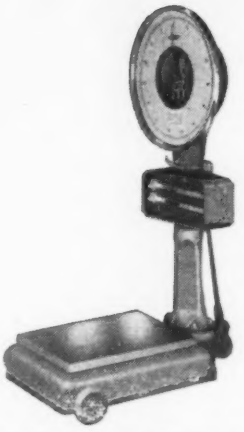


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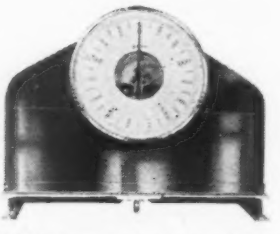
†Indicates Sales Office Only

This is the Chase Network—handiest way to buy brass





KRON Portable Platform Scales, available in 3 or 4-wheel models with or without tare and capacity beams, maintain accuracy even under hard usage. Capacities up to 2700 lbs.



KRON Crane Scales, in standard or low headroom types, provide high capacity weighing for loads up to 60,000 lbs. at extreme accuracy indoors or out. Inbuilt features including 25% overload factor insure complete safety.



KRON Swivel Dial Head is exclusive feature of all Kron Dial Scales, assuring the operator of an unobstructed view of the dial chart at all times, eliminating point-of-view errors. Entire head rotates through a complete circle at will.

PRODUCTION "GUESSTIMATES" ARE FILLED WITH HIDDEN COSTS

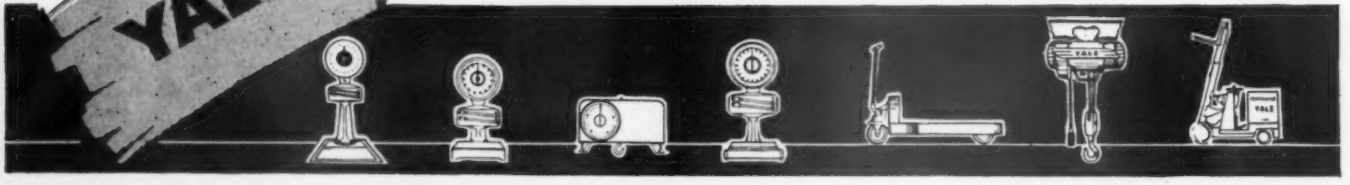
Production "guesstimates" result in the *hidden costs* industry pays for in lost time, wasted materials and mistakes in weighing, counting, measuring and batching. These materials handling operations are too often overlooked by industrialists in their constant search for more profitable methods to lower costs and speed production.

Kron Precision Springless Industrial Dial Scales are engineered specifically to keep these operations in step with modern production practices. Weighing, counting, measuring and batching are only a few of the many operations Kron Scales handle better and faster . . . at lower cost . . . with unfailing accuracy and durability, at a minimum of lost time and waste motion.

Available in dormant and portable platform, bench, overhead track, crane, pitless suspension and many other models for special purposes, Kron Scales are the answer to every problem of high-cost weighing. Write to The Yale & Towne Manufacturing Co., Philadelphia Division, 4530 Tacony Street, Philadelphia 24, Pa., for your copy of the new catalog of Kron Scales made by Yale.

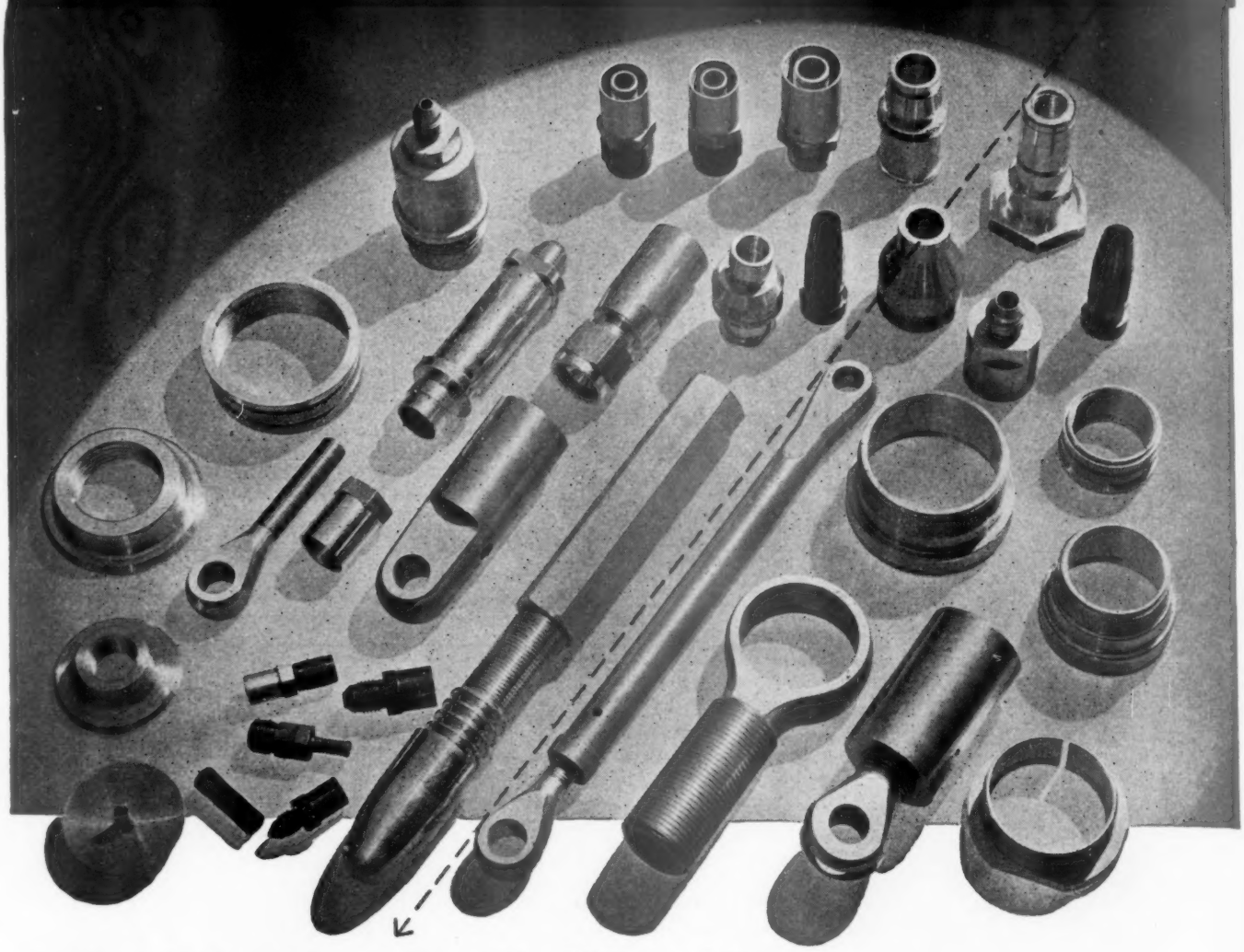
KRON INDUSTRIAL SCALES

CUT HANDLING COSTS . . . SAVE TIME . . . SAVE EFFORT . . . PROMOTE SAFETY



MATERIALS HANDLING MACHINERY: TRUCKS—HAND-LIFT AND ELECTRIC • HOISTS—HAND AND ELECTRIC

When the part is "unusual". . . .



come to an expert like Alcoa

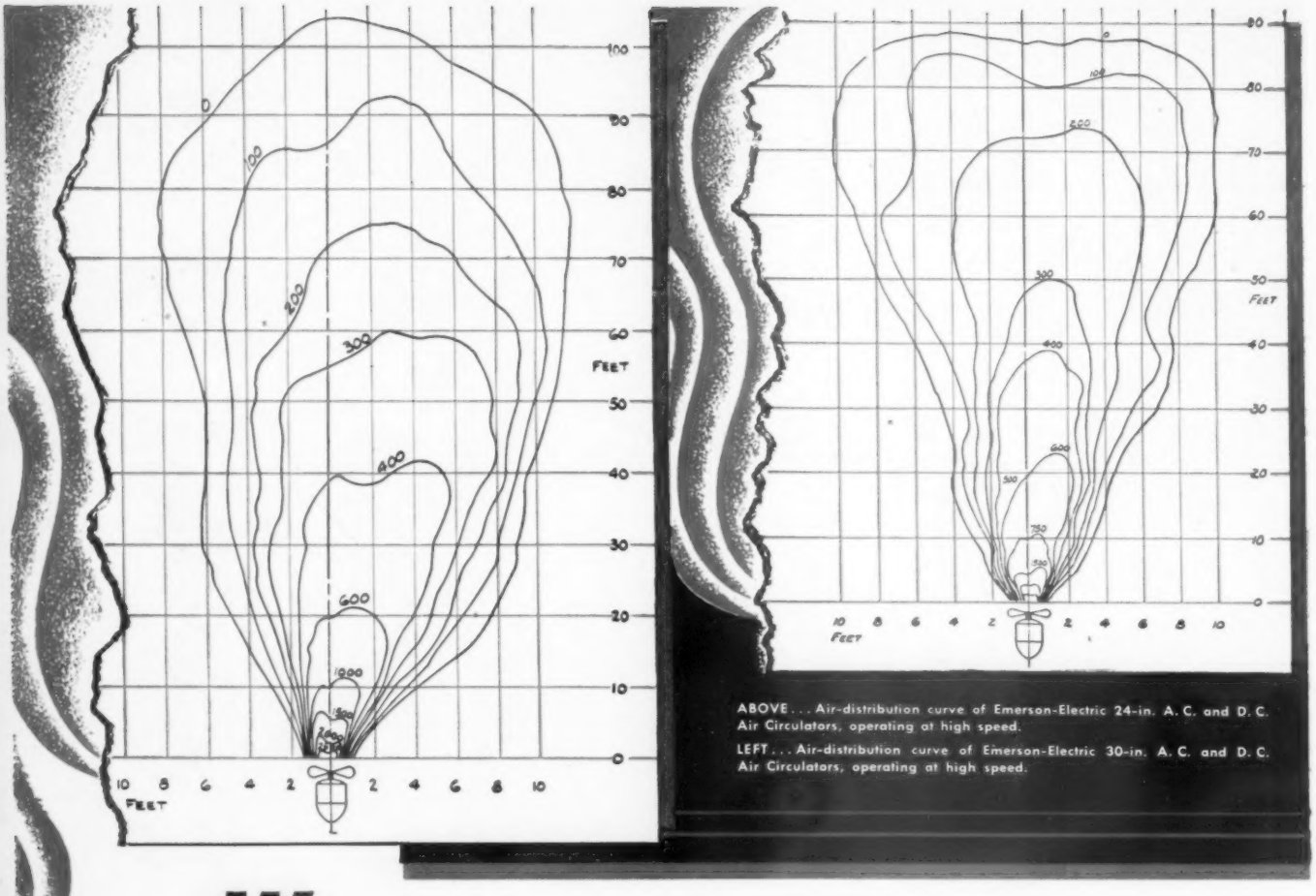
They're war workers, these Alcoa Aluminum screw machine products, performing vital tasks in Uncle Sam's fighting equipment. Many of them are unusual. Tolerances are usually exacting, quantities high, calling for a combination of high speed production and near toolroom accuracy.

For years, Alcoa has operated a screw machine division. Appetites have been whetted by these unusual assignments, as machines hummed along on standard production. We've aided Aluminum Research Laboratories in developing finer, faster machining alloys.

Whether you're in the market for screw machine products or stock, we'll welcome the opportunity to quote on your requirements. Write ALUMINUM COMPANY OF AMERICA, 1931 Gulf Building, Pittsburgh 19, Pennsylvania.

ALCOA ALUMINUM

ALCOA



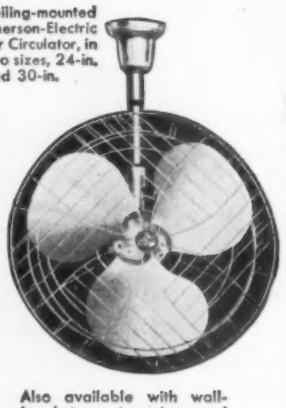
ABOVE . . . Air-distribution curve of Emerson-Electric 24-in. A. C. and D. C. Air Circulators, operating at high speed.

LEFT . . . Air-distribution curve of Emerson-Electric 30-in. A. C. and D. C. Air Circulators, operating at high speed.

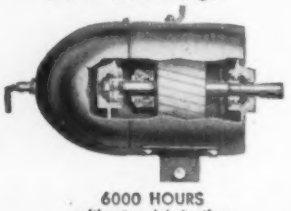
WHAT A BREEZE - - -

110 FT. LONG - - - 20 FT. WIDE!

Ceiling-mounted Emerson-Electric Air Circulator, in two sizes, 24-in. and 30-in.



Also available with wall-bracket, counter-column and floor-column mountings.



6000 HOURS without re-lubrication. Long motor life assured by special thrust-type ball-bearings.

Once again, it's the busy season for Emerson-Electric Air Circulators—thousands will be quietly at work adding another "service stripe" to an already long record of continuous, hot-weather operation.

What they do for you is quickly told in the breezy charts above. Note how the 30-in. size sets up an air path 110 ft. long by 20 ft. wide—the 24-in. size keeps air moving over an area up to 80 ft. long by 19 ft. wide. In each case, the figures on the curves indicate air velocity, in feet per minute, at various distances from the fan in an unobstructed area.

NEW SUPPLY AVAILABLE . . . There are a limited number of new Emerson-Electric Air Circulators available on suitable priorities. See your dealer for details.

THE EMERSON ELECTRIC MANUFACTURING COMPANY • ST. LOUIS 3, MO.

Branches: Yew York • Chicago • Detroit • Los Angeles • Davenport

EMERSON ELECTRIC

MOTORS · FANS APPLIANCES

13

It's always *"springtime"* in your automatic toaster

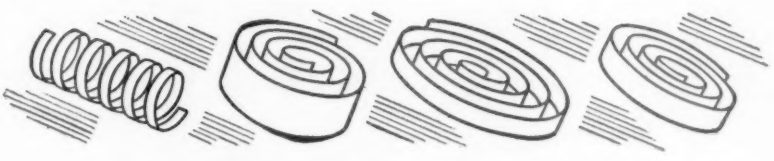


WHEN you set your toaster for light, dark, or medium, a *steel spring* times it for the shade of brown you like.

Many of these springs are made from special steels developed here at Athenia . . . steels engineered to meet rigid specifications. Smoothly polished surface is one important requirement so each layer of the spring may slide easily over the other. High elasticity is necessary to assure long life and freedom from permanent distortion. Tensile strength helps prevent cracking from over compression. And uniformity of structure is essential for even pull and accuracy of timing.

And for clocks, typewriter carriages, fishing reels, mark-time switches, and many other requirements, Athenia is producing the *precise spring for the job,* either in the form of wound springs or steel strip.

Providing a combination of properties to meet particular requirements has been the work of Athenia for more than 30 years. If you have a precision steel problem that involves stock in widths of 1/16" to 6½", thicknesses of .0015 to .062, annealed, cold-rolled, tempered or tempered polished and colored, try Athenia personalized service.



NS
The ATHENIA STEEL Company
DIVISION OF NATIONAL-STANDARD

Buy and Keep War Bonds and Stamps

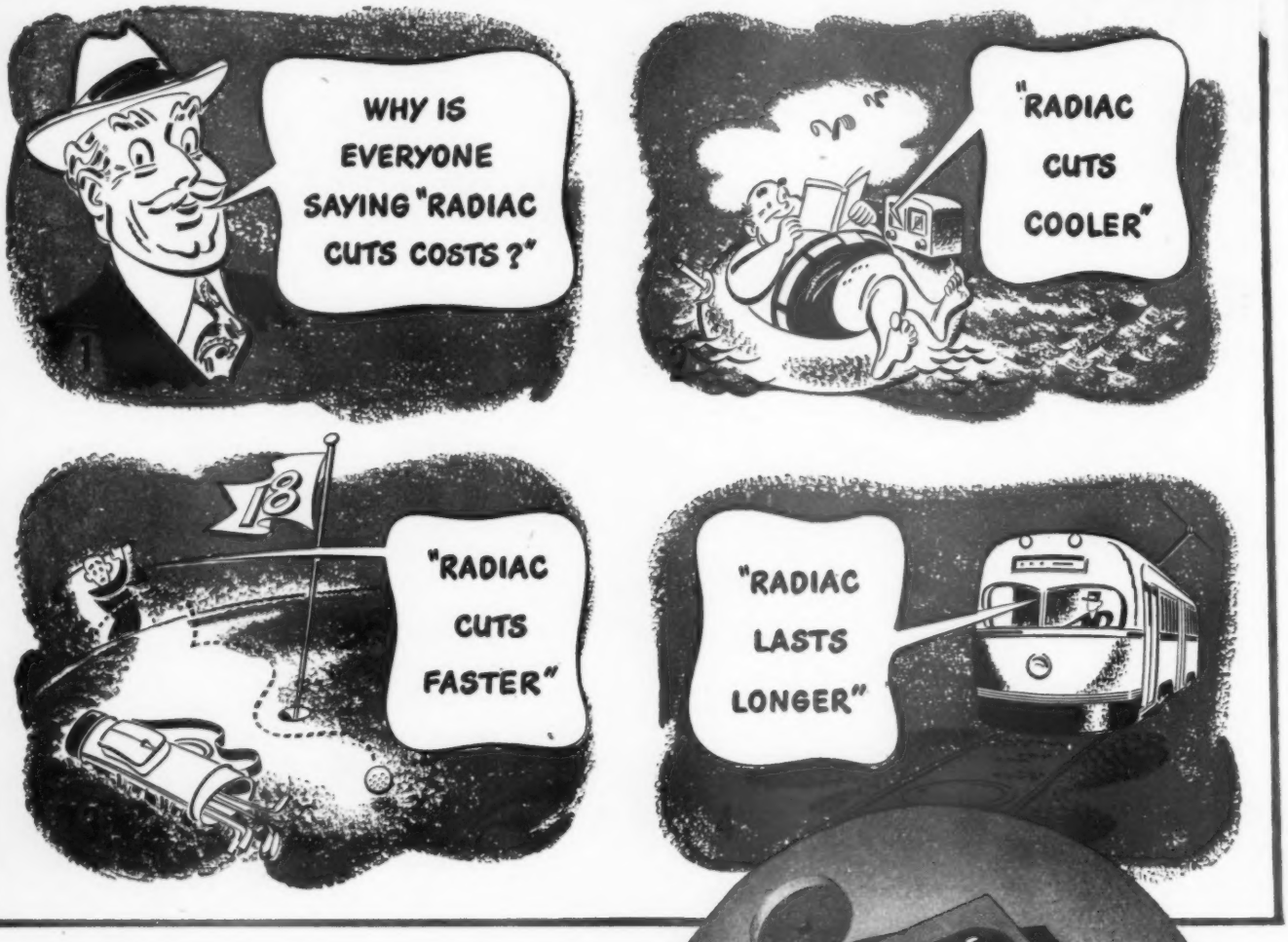
Divisions of National-Standard Company

THE ATHENIA STEEL CO.
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COLD ROLLED, HIGH-CARBON SPRING STEEL

NATIONAL-STANDARD CO.
Niles, Mich.
TIRE WIRE, FABRICATED BRAIDS AND TAPE

WORCESTER WIRE WORKS
Worcester, Mass.
ROUND STEEL WIRE, SMALL SIZES

WAGNER LITHO MACHINERY CO.
Hoboken, N. J.
LITHOGRAPHING AND SPECIAL MACHINERY



PRESCRIPTION FITTING – is how we build the *right* wheel or point precisely to *your* job. Every Radiac is *different* and *specialized.*

CUSTOM-COMPOUNDING – is the personal service given your "prescription." Each order is then filed for quick and accurate duplication.

- **RADIAC MOUNTED POINTS AND WHEELS**
  - Dressed and Finished—ready to use (no finishing required by you)
  - All kiln glaze is removed
  - 100% tested to precision tolerances
  - Concentricity Guaranteed
  - Special Bakelite cement secures wheel to mandrel
  - Available in tough, regular aluminum oxide (brown) or special aluminum oxide (white or red bond) for greater friability.
- **RADIAC INTERNAL GRINDING WHEELS**
  - 100% tested to precision tolerances
  - Every wheel a product of pioneers in the development of internal grinding wheels
  - Available in tough, regular aluminum oxide (brown); special aluminum oxide (white or red bond); or a special exclusive "Blue Glass" friable bond which permits an increase in ratio of cutting grain to bond.



REMEMBER THE NAME

RADIAC*

PIONEERS in the development of

MOUNTED POINTS AND MOUNTED WHEELS
INTERNAL GRINDING WHEELS

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PHOENIXVILLE, PA. • SINCE 1893

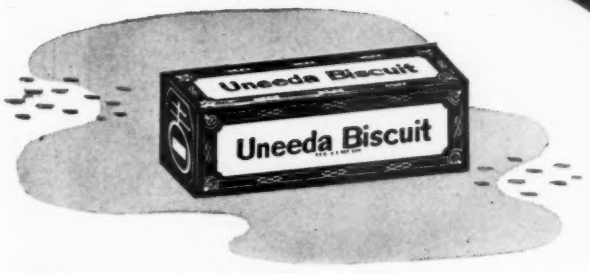
*T. M. Reg. U. S. Pat. Off.

The Same Exceptional Performance EVERY TIME!

PROSPERITY after the war means high production, fair wages, helpful laws, sensible taxes . . . so ALL Americans can earn more, buy more, have more.

The Package of The Future

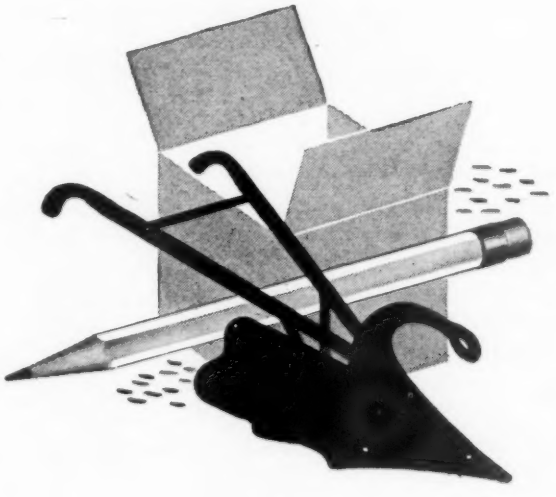
GAIR



In 1896 This famous package took the cracker out of the barrel. Made by Gair, it was the paper box that actually revolutionized food merchandising.



In 1942 This noted package took the balanced ration of the mess hall into the fox hole. It provided a hazardproof meal under any emergency. Tens of millions of these life saver containers were manufactured by Gair.



In 195? Tomorrow's packaging problems are being solved today by Gair ingenuity. The principles of packaging that are meeting rigid wartime standards, will be utilized in packaging everything from pencils to plowshares.

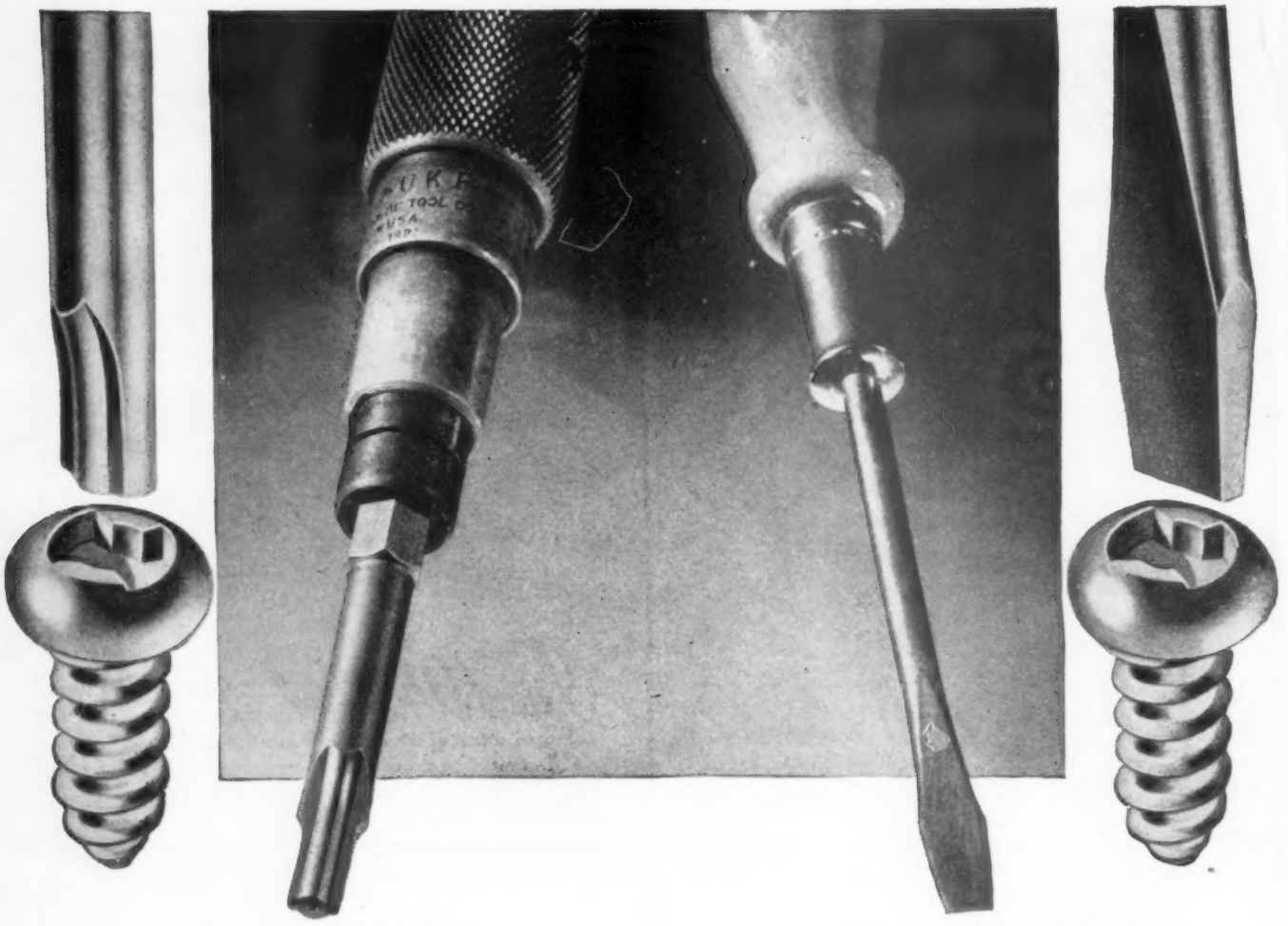
For 80 years, Gair has been a major contributor to the scientific art of packaging. Many of the great industries of America and the world have turned to Gair to solve their packaging problems. Many an obscure product has achieved international distribution due to the ingenious packaging ideas of Gair. The paper box for Uneeda Biscuits back in 1896, is but one example. And out of the necessity of this great war, Gair engineers have developed amazing contributions in packaging everything from blood plasma to airplane parts.

• *Make your postwar packaging plans now and gear those plans to Gair.*

SAVE WASTE PAPER

ROBERT GAIR COMPANY, INC., NEW YORK • GAIR COMPANY CANADA LIMITED, TORONTO

Folding Cartons • Box Boards • Fibre and Corrugated Shipping Containers



TYPE "A" POWER BIT FOR

SAFER, FASTER, LOWER COST ASSEMBLY

AN EASY-TO-HIT TARGET. The visibility of CLUTCH HEAD'S wide roomy recess substitutes operator confidence for slow-down hesitation. Saves "breaking-in" period.

NO DRIVER CANTING. The Center Pivot column guides the bit directly into full-depth dead-center entry. Makes straight driving automatic.

NO "CHEWED-UP" HEADS to stop or slow up the line. Definite grip also protects manpower and material against slippage.

NO RIDE-OUT TENDENCY. With CLUTCH HEAD the driving contact of bit and recess walls is all-square. No "kick-out" as in tapered driving. Disposes of end pressure as a fatigue factor and slippage hazard.

EFFORTLESS DRIVING steps up speed for smoother, higher production. Checks out end-of-the-shift lagging.

DRIVE EXTRA THOUSANDS OF SCREWS with the rugged Type "A" Bit . . . without interruption for tool change.

NEW BIT LIFE IN 60 SECONDS. No back-to-the-factory shipment. Simple 60-second application of the end surface to a grinding wheel restores this bit to original efficiency.

THE COMMON SCREWDRIVER FOR

SIMPLIFIED FIELD SERVICING

THE ONLY MODERN SCREW on the market that is basically designed for operation with a common screwdriver.

FIELD SERVICE "HEADACHES" ELIMINATED. No time wasted hunting special tools. No needless multiple tool expense.

WIDTH THE ONLY FACTOR. The only requirement is that the screwdriver blade be reasonably accurate in width. Thickness of the blade is secondary.

CUTS NON-OPERATING TIME. This simplified servicing expedites adjustments in the field to keep your product in consistent operation . . . an important selling point to users.

TYPE "A" HAND DRIVERS TOO. The same rugged bit is available for field service. While not essential, this bit has special advantages found in no other similar tool.

THE CLUTCH HEAD LOCK-ON enables service men to withdraw screws undamaged and saved for re-use, the reverse action securely locking the screw to the end of the Type "A" Bit. The same Lock-On feature operates in replacing screws, permitting of easy one-handed reaching to hard-to-get-at spots . . . frequently saving disassembling of surrounding units.

CLUTCH HEAD SCREWS

Investigate what these exclusive CLUTCH HEAD *features mean to you in reconversion. Write for details, illustrated Brochure, package assortment of screws, and sample Type "A" Bit.*

UNITED SCREW AND BOLT CORPORATION

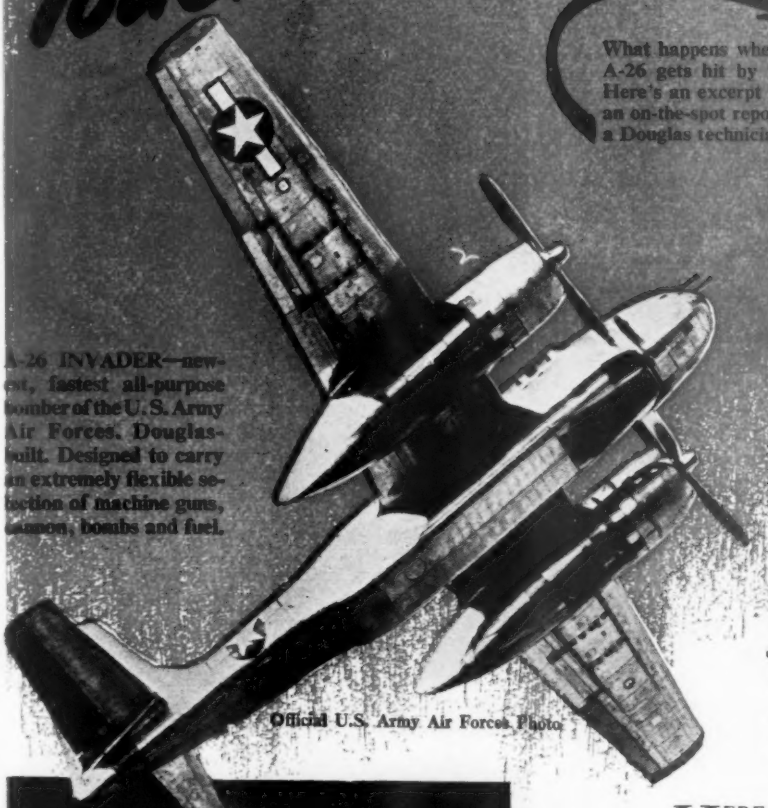
CHICAGO 8 CLEVELAND 2 NEW YORK 7

How UP-TO-DATE are you on ALUMINUM?

TOUGH BABY MADE TOUGHER!

What happens when an A-26 gets hit by flak? Here's an excerpt from an on-the-spot report of a Douglas technician:

"One ack-ack shell made a direct hit on one of the Invaders. An armament expert told me that the shell ordinarily would have penetrated an ordinary airplane, but on the A-26, it hit the armor plating and left only a scratch about an eighth of an inch deep and eight inches long."



A-26 INVADER—newest, fastest all-purpose bomber of the U. S. Army Air Forces. Douglas-built. Designed to carry an extremely flexible selection of machine guns, cannon, bombs and fuel.

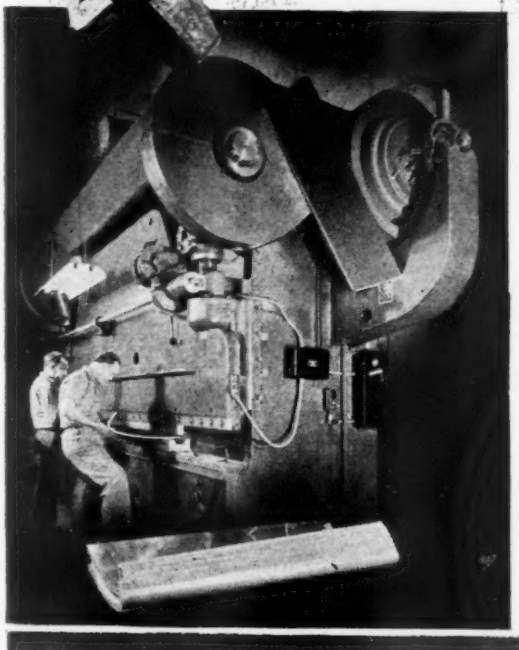
Official U.S. Army Air Forces Photo

TODAY:

R301 is Reynolds great armor plate alloy

TOMORROW:

R301 is Reynolds great sheet and plate alloy, for high strength, toughness and easy workability



HERE is a metallurgical triumph . . . an aluminum alloy so strong and resilient that it sheds flak . . . so light that it can be used to armor plate a fighting bomber like the A-26.

Adding toughness to the A-26 is a proud accomplishment, yet it is only one of many jobs R301 is doing for the fighting forces.

On land, on sea and in the air—in torrid heat, in sub-stratosphere cold—this great, high-strength Reynolds alloy has proved its tremendous versatility, setting the pace for broad peacetime applications.

R301 today leads the field in usefulness . . . reward for the pioneering spirit which distinguishes Reynolds and Reynolds engineers.

Production-Wise . . . R301—in solution heat-treated temper, is stable and more workable than any other high-strength aluminum alloy in the corresponding temper—thereby eliminates costly post-forming heat treatment and consequent distortion. Produced in three tempers.

See Reynolds catalog in Sweet's; also write for special bulletins on R301 and other Reynolds light-weight, high strength aluminum alloys. Reynolds Metals Co., Aluminum Div., 2525 S. 3rd St., Louisville 1, Ky.

Giant press forms complete armor sections for America's war planes from R301, Reynolds great aluminum alloy.

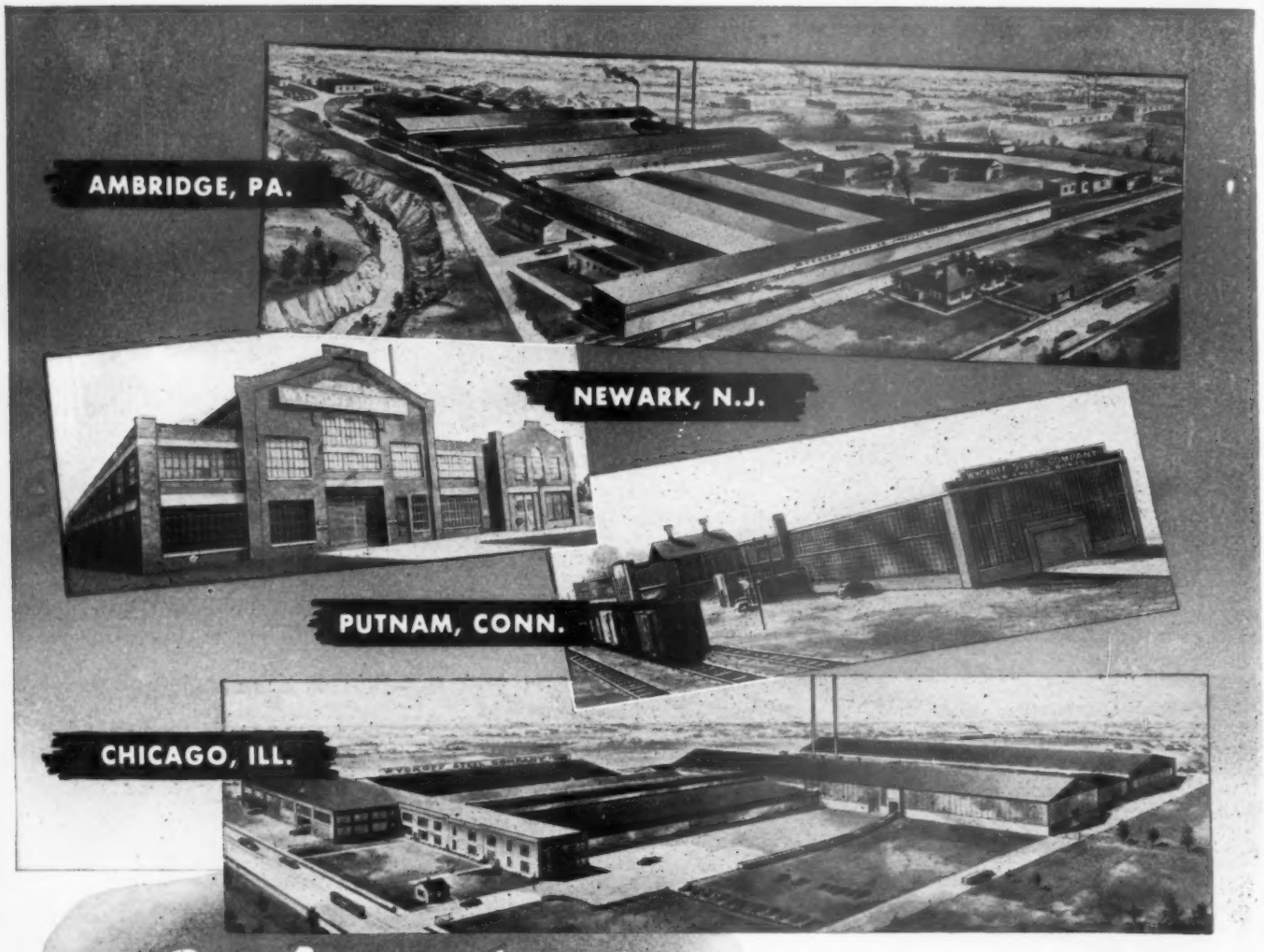
Keep your dollars fighting . . . BUY MORE WAR BONDS

REYNOLDS METALS

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The Great New Source of

INGOT · SHEET · SHAPES · WIRE · ROD · BAR · TUBING · PARTS · FORGINGS · CASTINGS · FOIL · POWDER



Wyckoff

COLD FINISHED STEEL PRODUCTS

★ Carbon and Alloy
Rounds ⅛" to 6"
Squares ⅛" to 4"
Hexagons ⅛" to 3⅞"
Flats ⅛" x ¼" to 2" x 12"

★ Turned and Polished Shafting

★ Turned and Ground Shafting

★ Special Sections

With unexcelled furnace facilities for producing a complete range of sizes and treatments.

FROM 1 to 4

***. . . because of constant adherence to the highest standards of* QUALITY, ACCURACY *and* SERVICE TO INDUSTRY**

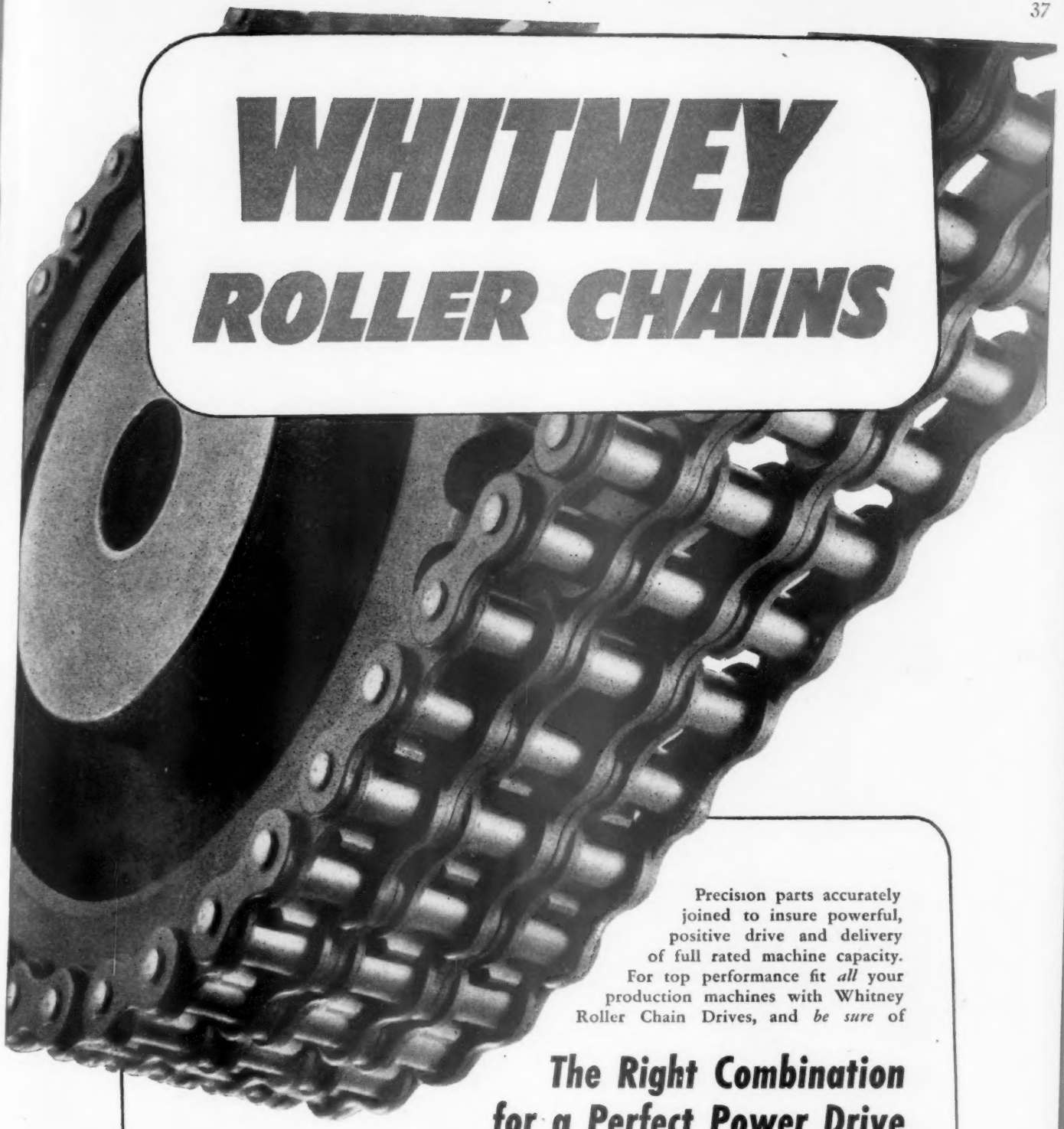
. . . and when the guns of war are silenced, a network of representatives from coast to coast, with complete warehouse stocks in every large industrial center, will be ready to serve your *every* need for cold finished steel products. In the meantime, let Wyckoff engineers work with you, in planning for those *cost-saving* days to come.

ARMY E NAVY

WYCKOFF STEEL COMPANY
FIRST NATIONAL BANK BUILDING · PITTSBURGH 30, PA.
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Works at
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Precision parts accurately joined to insure powerful, positive drive and delivery of full rated machine capacity. For top performance fit *all* your production machines with Whitney Roller Chain Drives, and *be sure* of

The Right Combination for a Perfect Power Drive



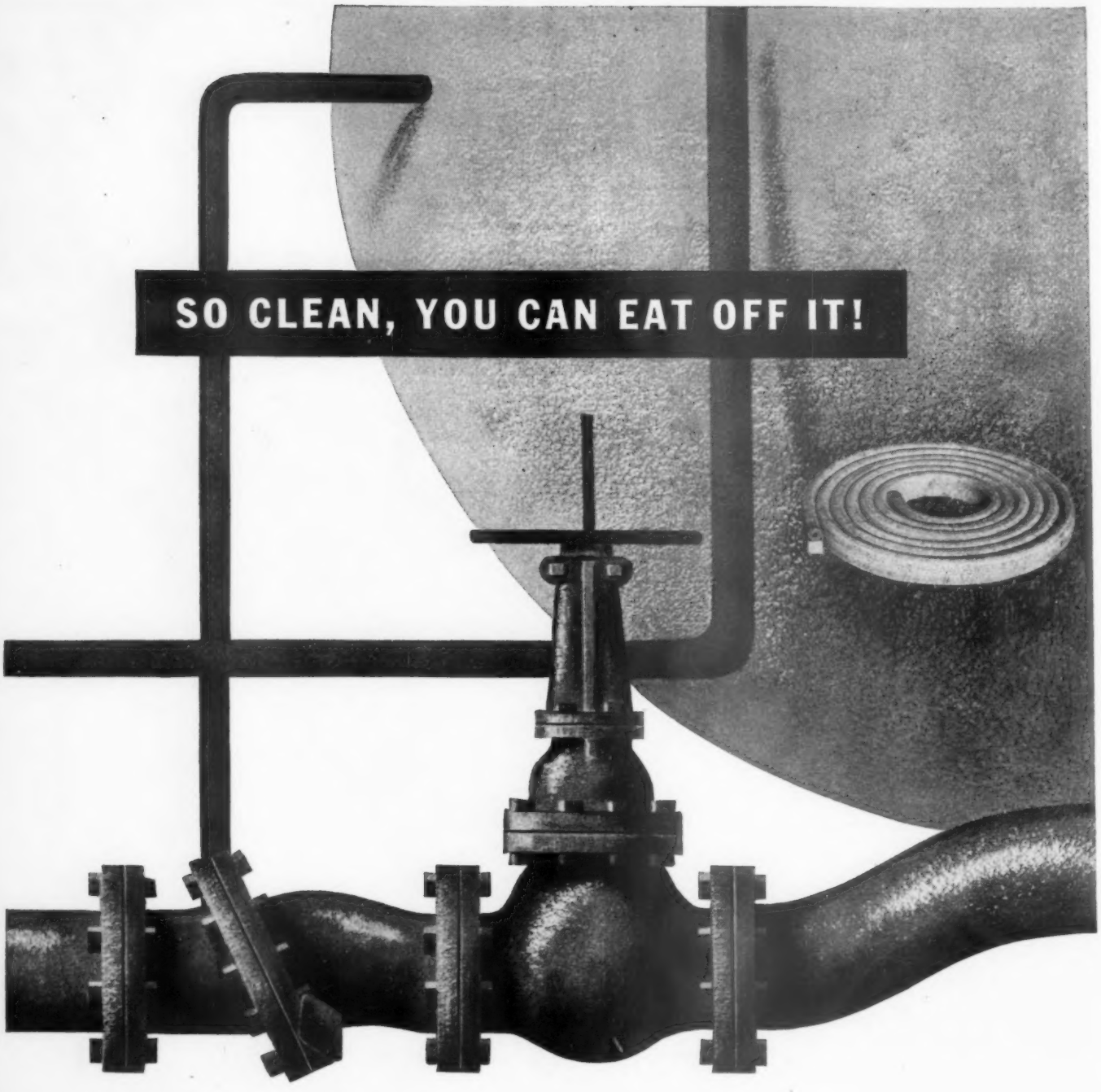
Plates, punched from alloy stock, are heat-treated for maximum strength and toughness.

Pins have high shear value and resistance to wear. They are case hardened and centerless ground.

Bushings are die drawn from selected alloy steels, properly case hardened; held to close limits.

Rolls, turned from solid alloy bars, are heat-treated for toughness.

THE WHITNEY CHAIN & MANUFACTURING COMPANY, HARTFORD 2, CONN.

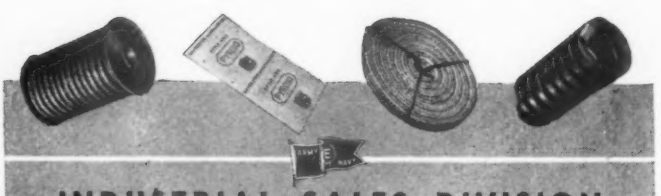


Each of the 73 different kinds of R/M packing is designed to meet a particular problem. In the food industry, for instance, R/M packings meet special sanitary requirements. They're so clean, you can eat off them.

So, whatever your particular packing problem . . . high-pressure steam . . . extreme temperature . . . acids or other chemicals . . . petroleum products . . . there are R/M products to give long and satisfactory performance.

Ask for R/M, the packing backed by more than forty years of experience.

It's "Packed with Satisfaction"—When You Use R/M



INDUSTRIAL SALES DIVISION

RAYBESTOS-MANHATTAN

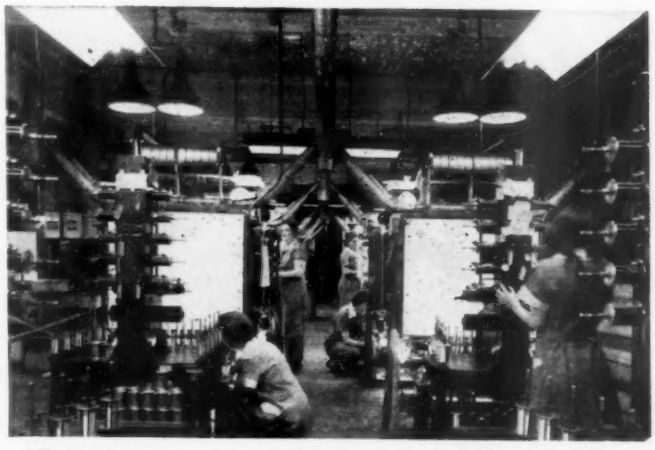
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Manheim, Penna. · Bridgeport, Conn.
North Charleston, S. C. · Passaic, N. J.

4 TOUGH JOBS

. . . and how to lick 'em with G-E Mazda Lamps

Proper use of better lighting can produce startling results . . . in better efficiency, in reduced spoilage, in more and faster production. Shown here are four typical industrial jobs, each much improved with better lighting from G-E Mazda Lamps. Ask your G-E Lamp Distributor for full details.



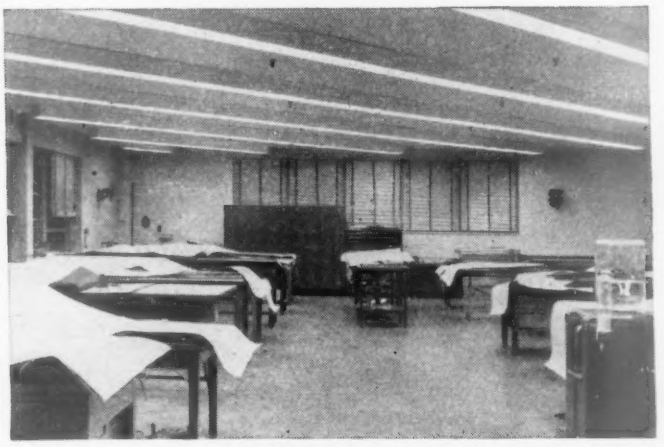
1 **Instant detection** of breaks in fine wire helps this plant keep production up, costs down. Correct lighting with G-E Mazda Lamps enables even unskilled workers to reduce errors and do more accurate work.



2 **Polished surfaces** often present tough inspection problems. Above, inspection of highly polished machine parts is made easier with low brightness, high footcandle lighting developed with G-E Mazda Lamps.



3 **Safety hazards** can be minimized with high level illumination. G-E Mazda Lamps provide uniform, efficient light sources to help operators see better, faster, more accurately.



4 **Fewer mistakes!** G-E Fluorescent lighting helps to hold shadows at an absolute minimum. It approaches actual daylight conditions with soft, cool, low-brightness illumination.

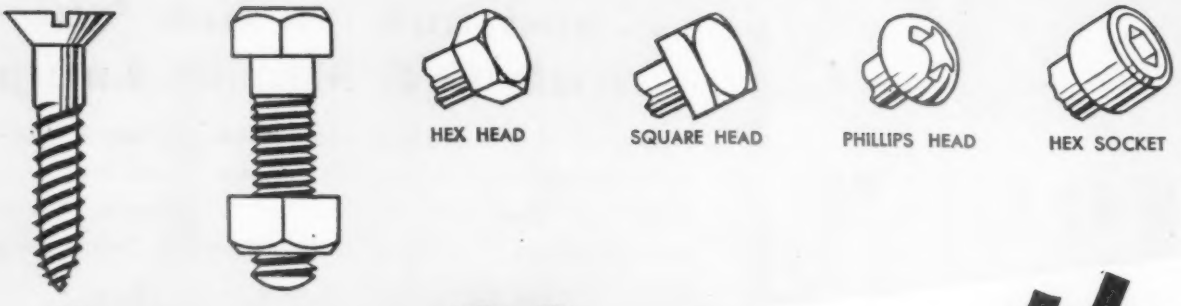
"To make G-E Lamps STAY BRIGHTER LONGER"
The constant aim of G-E Lamp Research



G-E MAZDA LAMPS
GENERAL ELECTRIC

Hear the G-E radio programs: "The G-E All-Girl Orchestra", Sunday 10:00 p. m. EWT, NBC; "The World Today" news, Monday through Friday 6:45 p. m. EWT, CBS "The G-E Houseparty," Monday through Friday 4:00 p. m. EWT, CBS.

BUY MORE WAR BONDS . . . AND HOLD 'EM



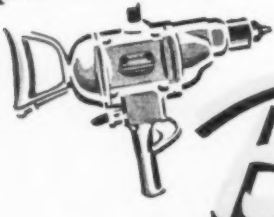
You Name it They Drive it

WOOD SCREWS MACHINE SCREWS
SELF-TAPPING SCREWS NUTS AND BOLTS

Black & Decker Electric Screw Drivers and Nut Runners speed up practically every type of assembly work . . . from the most delicate screw driving operations to driving and tightening nuts and bolts up to 1" diameter or lag screws up to ¾" x 6".

Light, compact and easy to handle, as well as powerful and dependable, these Black & Decker Power Drivers assure top-speed production with greater accuracy and uniformity, with fewer rejects under inspection and with a minimum of operator strain and fatigue.

Three of these time-saving, cost-cutting assembly tools are shown on the opposite page . . . and full information about all models and their many applications is given in our 60-page illustrated "Power Assembly Tool Data Book." For a free copy address: The Black & Decker Mfg. Co., 664 Pennsylvania Ave., Towson 4, Maryland. For help on any tooling problem, see your nearby Black & Decker Distributor.



LEADING DISTRIBUTORS EVERYWHERE SELL

Black & Decker

PORTABLE ELECTRIC TOOLS





Positive Clutch Scrugun $47

Designed for versatility. Drives wood screws up to #10 x 2", self-tapping screws up to #12, machine screws and nuts up to ¼" diameter. Positive clutch lets free spindle idle until operating pressure engages jaws. Weighs 3½ lbs. Measures 8¾" overall.



Adjustable Clutch SCRUGUN. . . $57

Designed for uniform production. Adjustable clutch automatically drives every screw to uniform tension . . . then releases spindle. Drives self-tapping screws up to #12 or machine screws and nuts up to ¼" diameter. Weighs 3¾ lbs. Measures 10¼" overall.



90° Angle Drive SCRUGUN . . . $77

Designed for work in close quarters and around corners. Has adjustable clutch. Angle head transmits full power to spindle. Drives self-tapping screws up to #12 or machine screws and nuts up to ¼" diameter. Weighs 4½ lbs. Measures 10¾" overall.

*Trademark reg. U. S. Pat. Off.



Resist THE ELEMENTS

Rely on National . . . with its long practiced, specialized skill . . . to provide a bond of high wet strength

With the thought in mind that you can't choose the weather — but you can choose the adhesive — let's take a look at the short but very complex life of an ordinary single-ply Kraft shopping bag: A sudden shower may drench it; an unexpected meeting with a wet surface may soak it; close contact with wet vegetables, frozen food and sweating bottles may saturate it. In each case the bond will fail almost immediately unless it is formed with a high wet strength adhesive.

Make a comparative submersion test against an ordinary bond. There's a sales point here that may surprise you!

Now, let's look at the more complex problem of shipping calcium chloride. Packaged at 205°F. it is so hygroscopic that moisture cakes it . . . so deliquescent that excessive moisture sends it into solution . . . yet it must be delivered dry and free flowing. A 5-ply multiwall bag solved the problem: Three plies of specification Kraft paper; two special moisture-resistant plies — all bonded with high wet strength adhesives.

Wet strength adhesives offer a solution to packaging, converting, assembling problems involving resistance to water, moisture-vapor, oil, steam, grease, lactic acid, etc. Submit your specific problem to National . . . now!

Offices: 270 Madison Avenue, New York 16; 3641 So. Washtenaw Avenue, Chicago 32; 735 Battery Street, San Francisco 11, and other principal cities. In Canada: Meredith, Simmons & Co., Ltd., Toronto and Montreal. In England: National Adhesives Ltd., Slough, Bucks.

National ADHESIVES

EVERY TYPE OF ADHESIVE FOR *EVERY TYPE OF ADHESION*

Purchasing Previews



A Washington Report..... for Purchasing Agents

July 1, 1945

STAR RECONVERSION ROLE FOR PURCHASING AGENTS . . .

WPB reconversion policy places major emphasis on the role of the industrial purchasing agent. Open-ending of CMP this month anticipates that the cutbacks in war contracts will release sufficient metal to enable manufacturers to resume civilian production on facilities made idle by cutbacks.

There is no exact estimate of the tonnages which will be released, and industry is advised to "shop" for materials.

Problems posed by the WPB policy of giving industry its head in the reconversion period are the bottleneck shapes and forms of metal, such as steel sheet and all types of foundry products; shortage of such metals as tin and lead; shortage of such other materials as textiles, leather and a large number of basic chemicals, as well as common components largely used in both war and civilian production.

To safeguard against the quick siphoning off of such free metal as becomes available by industries consuming mass tonnages of metal, WPB retains quotas on the production of trucks, automobiles, metal furniture, domestic mechanical refrigerators, domestic stoves and cooking appliances, farm machinery, wood furniture, and radios.

INVENTORY RESTRICTIONS . . .

A limitation on the accumulation of inventories will be retained, and those engaged in limited manufacture of civilian products are permitted use of an AA-4 priority rating.

Inventories are restricted to a 30-day supply of anticipated need. This applies to materials held by the purchaser. There is no restriction on the amount which may be on order for future delivery. This is a basic change in policy.

WPB has had a difficult time in the past defining and enforcing inventory restrictions, and the present restriction relies largely upon the judgment of the purchaser. However, WPB has a rough check on what the outside limits of a 30-day inventory should be, and will seek to ride herd on excessive inventories through spot checks.

ROAD TO CONVERSION LOOKS ROCKY . . .

Transition from controlled markets to a scramble for materials will not be smooth.

Decision to take hands off the civilian production picture was based on a wide variety of considerations:

1. There is a basic belief that competition among manufacturers will result in speeding up reconversion.

2. WPB is not prepared to schedule and policy each manufacturer on a quota basis.

3. Restriction to production of only particular classes of essential products would not absorb local unemployment. Biggest pressure for reconversion is the unemployment impending in many communities—the need for civilian goods is important, but incidental.

Possibility is that supply of materials may be more adequate than appears on the surface, because:

1. It will take industry longer to reconvert and to begin actual consumption of metal than is generally expected.

2. Military cutbacks will release not only the metal involved in producing for the contract, but the metal required for inventory.

SURPLUS DISPOSAL PROBLEMS . . .

Disposal of surpluses continues to be an explosive administrative problem.

Feeling is that the Surplus Disposal Act is unworkable, due to the series of priorities and preferences in purchase which it gives to specified groups.

Policy in disposal of consumer goods is undergoing some change as the Department of Commerce feels its way into the disposal picture.

Encroachment of the Department of Commerce into the picture has been described as a grab for power—but actually the problem was dumped into Secretary Wallace's lap. Treasury Procurement was glad to get rid of it.

INFLATION DANGER . . .

Prices will continue to inch upward, but will be kept in general line by the Office of Price Administration, through the same policies and procedures that have been in effect during the past year.

Biggest factor in the price rise will be in increased labor costs. As a rough average, wage rates have advanced about 20 percent, and it is still undetermined how these boosts will reflect in the prices of materials and components.

General objective will be to hold prices to a reasonable level during the reconversion period, on the premise that the costs of reconversion should be considered as a capital investment, rather than reflected immediately in the costs of goods.

AID FOR SMALL BUSINESS . . .

Smaller War Plants Corporation continues its crusade to aid small business. Maury Maverick, chairman, suggests that the Government act as a clearing house for smaller plants to participate in the export market.

His program to inject smaller manufacturers into the export market is:

1. Barriers between American small business and foreign customers should be broken down. Small business specialists should be attached to all foreign offices in the U. S. Government.

2. A Technical Advisory Service should be established to aid small business in securing the "know-how" of foreign trade.

3. Standard specifications for export markets would tend to keep foreign buyers advised of types and quality of products which small firms in the U. S. can manufacture.

4. Smaller War Plants Corporation should be authorized to continue accepting orders from foreign purchasing missions for redistribution to small firms.

5. Credit assistance—insurance and direct loans—for small firms to permit them to finance export sales.



STITCH WITH STEEL TO SAVE MANPOWER

With a press of the pedal, rapidly formed steel stitches drive continuously through tough boxboard. Stitching with steel is just that fast . . . and speed saves manpower by increasing production volume. Acme Silverstitchers prove it.

Stitching with steel makes stronger carton closures, gives better container appearance . . . with economy. Acme Silverstitchers prove this, too . . . every time!

Silverstitchers are power-driven machines that form staples from continuous, long-length coils of steel wire . . . Silverstitch Stapling Wire. Silverstitchers have few moving parts . . . vital parts reversible for long service. The result: years of top performance through simplicity of operation.

For a photo story on how Acme Silverstitchers can help you, write today for informative folder.

ACME STEEL COMPANY

2842 ARCHER AVENUE • • CHICAGO 8, ILLINOIS

ALSO MANUFACTURERS OF ACME STEELSTRAP AND STRAP APPLYING EQUIPMENT

Longer Service and Lower Tonnage Cost

DETERMINE QUALITY IN REPUBLIC CONVEYOR BELTS

The handling of bulk materials economically requires belts with the necessary strength and resistance to abrasion and other service conditions. Republic's Super Excelo Reprene and Record Maker-S are heavy duty belts, with rubber compounds and construction designed for long service on conveyors handling large size rock and ore, coal, coke and other heavy, highly abrasive materials. For sugar, salt, clay, cement, sand and aggregates, Republic belts are engineered for such service. Those which must convey materials at high temperatures are specially designed, too. Republic's technologists have taken each service under study, and have put the necessary quality into a belt for each. Consult your Republic Distributor on conveyor and elevator installations.

• • • •

Better Than Before



WE ARE PARTICIPANTS IN THE OWNERSHIP AND OPERATION OF NATIONAL SYNTHETIC RUBBER CORPORATION



REPUBLIC RUBBER

DIVISION

LEE RUBBER & TIRE CORPORATION

YOUNGSTOWN 1, OHIO

REPUBLIC INDUSTRIAL PRODUCTS
YOUNGSTOWN, O.

LEE DELUXE TIRES AND TUBES
CONSHOHOCKEN, PA.





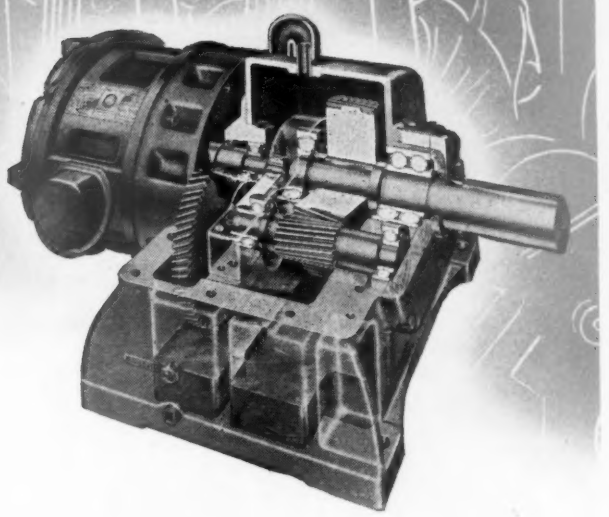


Nine good reasons for

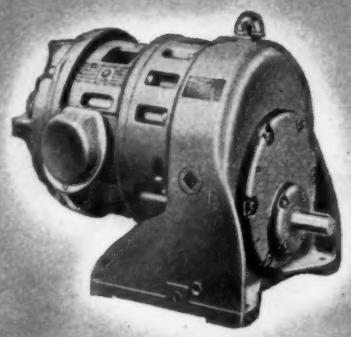
Modernizing with Westinghouse Gearmotors

on drives from 1 to 75 hp

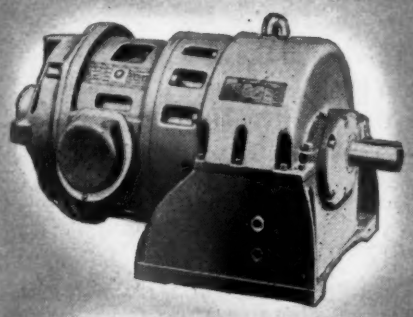
1. FEWER PARTS TO WEAR
2. BPT "TOUGH-HARD" GEARS AND PINIONS
3. USE ALL WESTINGHOUSE MOTOR TYPES
4. HIGH EFFICIENCY
5. POSITIVE LUBRICATION
6. EASY ACCESSIBILITY
7. IMPROVED FOUNDATION STABILITY
8. MOTOR AND GEARS BUILT BY ONE MANUFACTURER
9. DESIGNED AND APPLIED TO A.G.M.A. STANDARDS



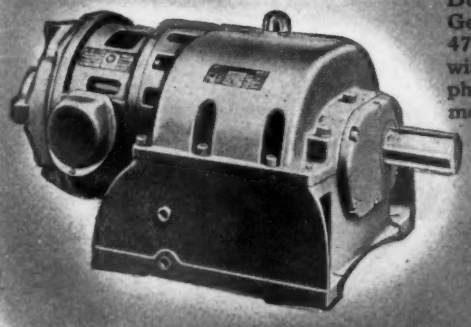
There is a Westinghouse speed reduction unit for most applications



TYPE A GEARMOTOR—Single-reduction unit. Gear ratios 1.22, 1.50, 1.84, 2.24, 2.73, 3.37, 4.17, 5.00, 6.25. Available with single-phase, polyphase, and direct current motors.



TYPE C GEARMOTOR—Double-reduction unit. Gear ratios: 7.61, 9.21, 11.3, 14.0, 17.5, 20.8, 25.7. Available with single-phase, polyphase, and direct current motors.



TYPE E GEARMOTOR—Double-reduction unit. Gear ratios: 31.2, 38.9, 47.3, 52.7, 58.3. Available with single-phase, polyphase, and direct current motors.

In the last few years, machine drives have taken a terrific peak-load punishment. So it's natural that reconversion will require many replacements with modern, economical drives.

When drives require speed reduction... and four out of five do... use a gearmotor. Specifying gearmotors simplifies ordering and delivery... saves installation expense because the complete drive is in one "package".

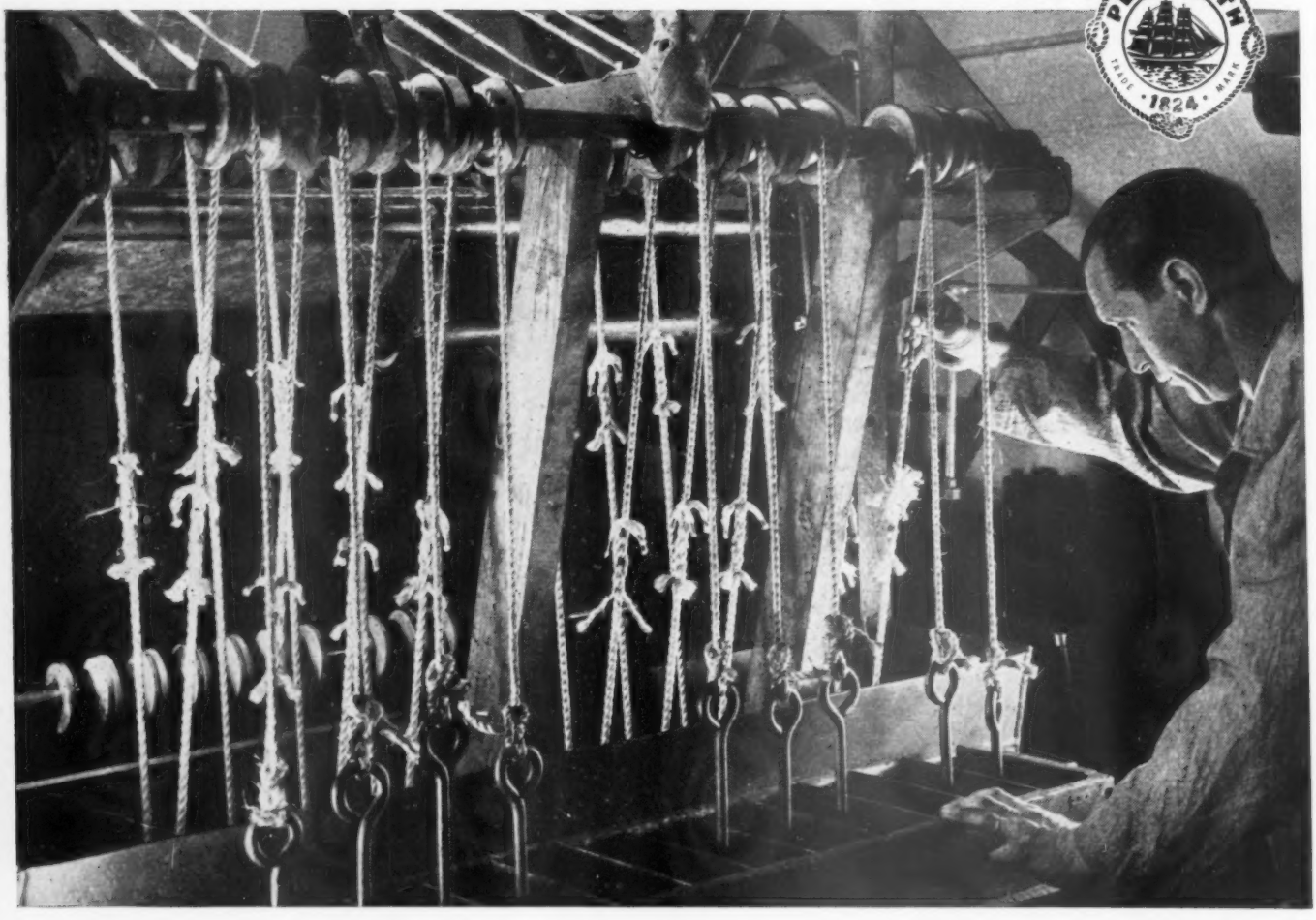
Westinghouse offers a complete line of gearmotors for speed-reduction drives up to 75 hp, and a complete line of similar speed reducing units for drives up to 1000 hp. Call your Westinghouse Office for information, or write Westinghouse Electric Corp., P. O. Box 868, Pittsburgh 30, Pa.

J-07229

Westinghouse

PLANTS IN 25 CITIES . . . OFFICES EVERYWHERE

Gearmotors



WHEN LIVES HANG BY TWISTED FIBERS . . .

David Dietz, noted Science Editor of Scripps-Howard, sees modern engineering in action



"Fifth Avenue's traffic is a silent thread far below the two men sand-blasting the sheer side of the sky-scraper. Their scaffold is hung by slim ropes—their lives swing on twisted fibers, 60 stories above ground. Those ropes must flow smoothly on their pulleys, and hold the scaffold's weight, and resist the strain of windy gusts that buffet high buildings with the slap of a giant fist.

"From the selection of fibers for Plymouth Rope to final testing of the completed coil, scientific manufacturing control and the ancient art of rope-making meet their toughest challenge in supplying rope for men to use in the Dangerous Trades.

"The photograph above shows ropes undergoing abrasion through thousands of operations over wet and dry surfaces. It is one of the 37 relentless tests by which Plymouth Rope is engineered for heavy responsibilities. That is how Plymouth builds greater strength, longer life, more useful performance into rope for hard jobs on farms, in factories, at sea and around the home."

Plymouth Cordage Company, Plymouth, Massachusetts. District Offices: New York, Chicago, Houston, San Francisco. Warehouse Stocks: New York, Boston, Philadelphia, Baltimore, Houston, Chicago, San Francisco.

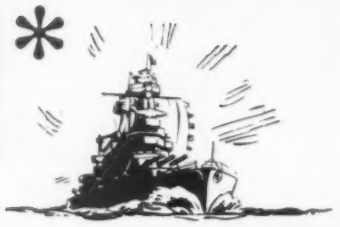
PLYMOUTH
CORDAGE PRODUCTS
ROPE · TYING TWINE · BINDER TWINE · BALER TWINE
THE ROPE YOU CAN TRUST





BROWN & SHARPE TOOLS

STAMINA*



. . . . you find more of it in Marsh Gauges

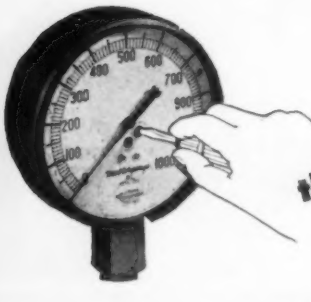
OF course a pressure gauge should be responsive to the most delicate changes in pressure. That is easy enough to accomplish in an instrument built along delicate lines, and such a gauge may be all right in a physics laboratory.

But the industrial application is a horse of another color. The gauge out on the job may be hit with a surge of over-pressure. Or Joe Doak may sock it with a piece of pipe he is carrying. Or anything else may happen. So the industrial gauge must be both as sensitive as a cat's whisker, and as sturdy as an ox.

That's the hard combination of qualities to achieve, and the remarkable degree with which it is achieved in Marsh Gauges distinguishes them from all others. Every part and element of Marsh Gauges is designed and built with an eye on stamina and the lasting accuracy it assures . . . the better bourdon tubes . . . the precise but rugged movement protected from external shocks by the Marsh "unit construction" . . . the sturdier gearing and linkage . . . many other refinements.

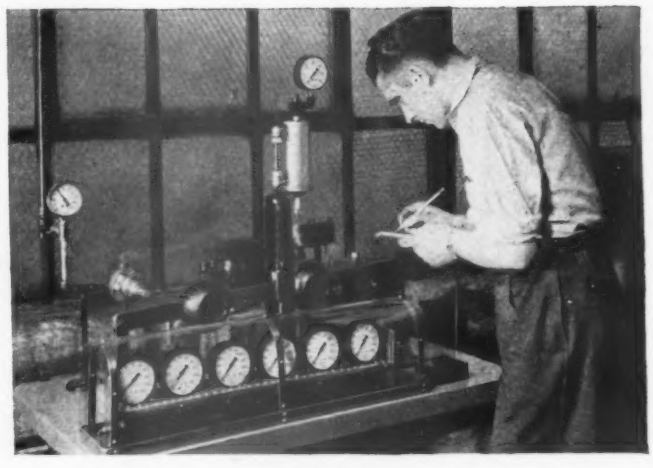
Tests like those shown here are at the top of our precaution list. We make Marsh Gauges to stand up, and we constantly prove their ability to do just that by pulsation and vibration tests. Make no mistake about it: The stamina of Marsh Gauges is truly an unduplicated feature!

JAS. P. MARSH CORPORATION
2054 SOUTHPORT AVE., CHICAGO 14, ILLINOIS
Export Department: 155 E. 44th St., New York 17, N. Y.

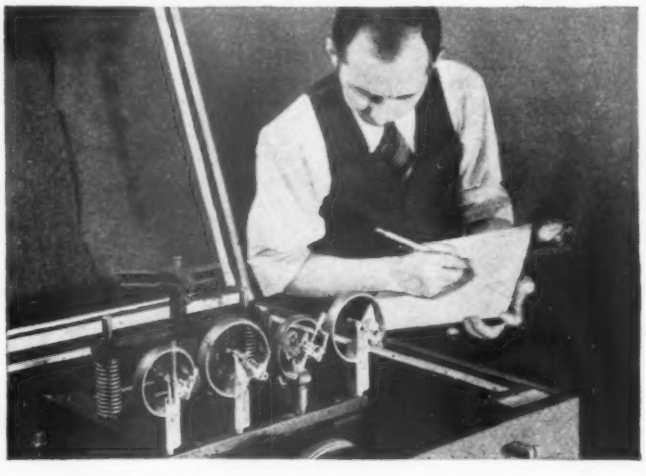


the gauge with the "RECALIBRATOR"

■ We not only built them to stay accurate, we also give you the easiest, quickest and best way to restore accuracy when extreme shock knocks them out of adjustment.



This pulsation test won't take "no" for an answer. It searches out bourdon tube and other weaknesses . . . has fathered many improvements in materials, manufacturing methods and design.

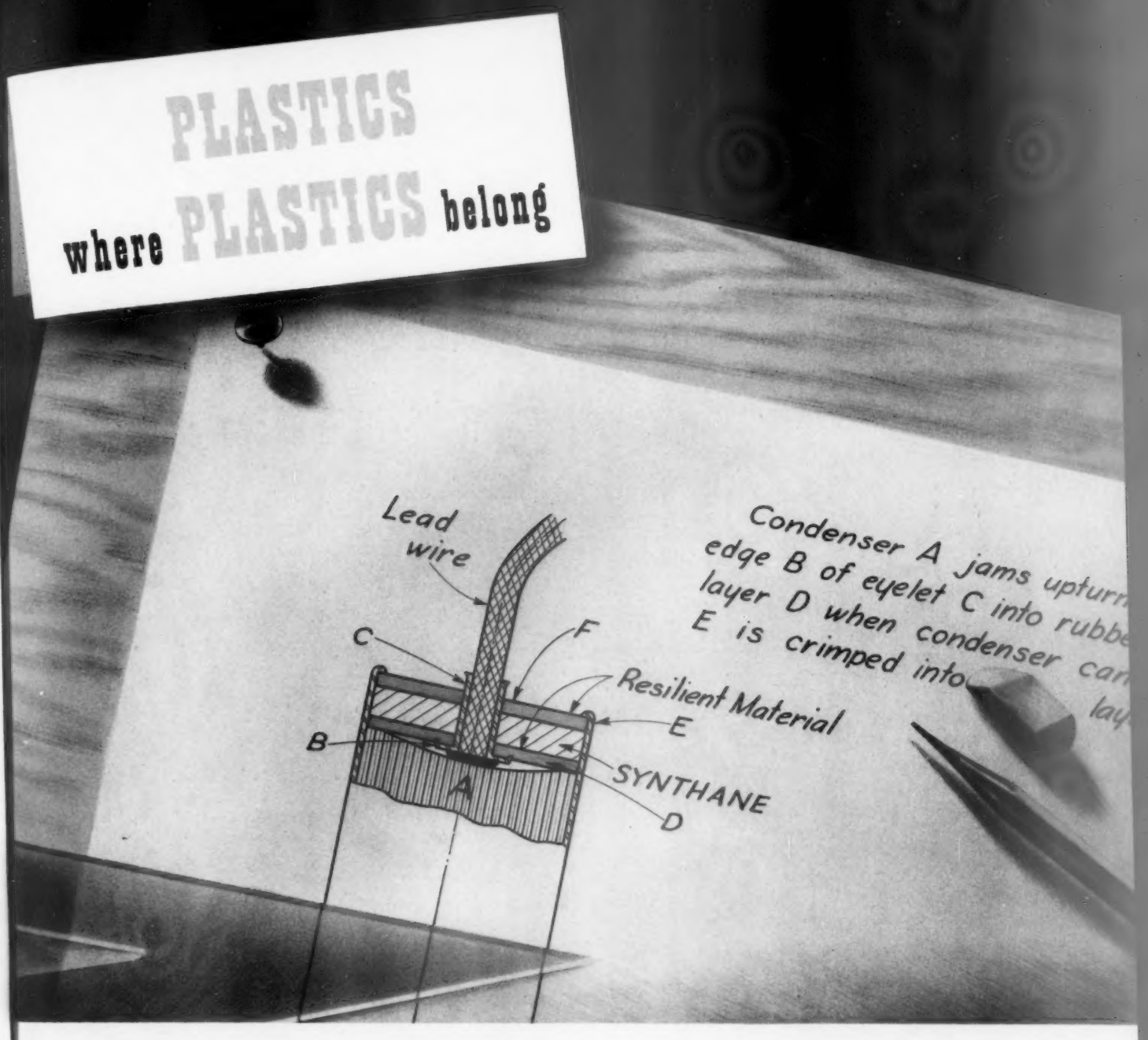


Brutal vibration is what gauges are subjected to in this test. Representative gauges from each production group are here given a far rougher shaking up than they would receive in any conceivable field application.

MARSH GAUGES

DIAL THERMOMETERS
HEATING SPECIALTIES

*One of a series of advertisements high-lighting the factors that make Marsh instruments "THE STANDARD OF ACCURACY"



Using Mechanical and Dielectric Strength

SYNTHANE laminated phenolic, sandwiched between and bonded to layers of a resilient material, is the basis of an interesting plastics application.

The assembly—a condenser—depends upon the resilient material for a perfect seal when the edge of the can is crimped. Synthane backs up the resilient material, provides needed strength and rigidity, and is also an excellent electrical insulator, unaffected by condenser oil.

In an application such as this, as in many others, it is desirable to consult our engineers before you design to see if Synthane can be used, and to decide which grade of Synthane will best meet your individual requirements and can be easily and readily produced. In fact, we will work with you from design, through selection of material, down to the delivery of the finished plastics parts, relieving you completely from worry and responsibility. Synthane Fabricated Parts are produced by men who know how to make plastics and how to machine them, using specialized equipment. Synthane Corporation, Oaks, Pennsylvania.

SYNTHANE TECHNICAL PLASTICS DESIGN • MATERIALS • FABRICATION



How many of these forms of Synthane do you recognize . . . and use?



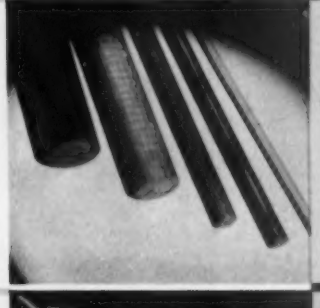
1 SYNTHANE SHEETS
Made by curing layers or laminations of impregnated paper or fabric with heat and high pressure.



2 SYNTHANE WRAPPED TUBES
Made by curing impregnated paper or fabric, wound about a mandrel, with heat.



3 SYNTHANE MOLDED TUBES
Same as wrapped tubes except tubes are cured under heat *and* pressure in molds.



4 SYNTHANE RODS
Produced by a method similar to that used in processing molded tubes.



5 SYNTHANE MOLDED-LAMINATED
A means of producing parts in a finished or nearly finished form by curing layers of sheets under heat and pressure in molds. An economical way of making parts in quantity, retaining the desirable strength characteristics of Synthane sheet material.

6 SYNTHANE MOLDED-MACERATED
Flakes of impregnated fabric are cured under heat and pressure in molds. More intricate parts can be formed than are possible by molded-laminated. Strength surpasses ordinary powder molding, does not equal molded-laminated.



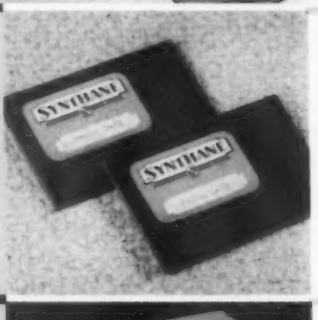
7 COMBINATION MOLDED-LAMINATED, MOLDED-MACERATED Some parts requiring strength in certain sections but intricacy in others may be made by a combination of the molded-laminated, molded-macerated methods.



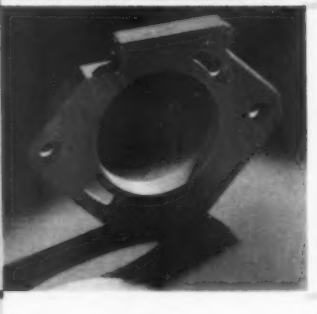
8 COMBINATION MATERIALS
Synthane is sometimes bonded under pressure to other materials to achieve a combination of properties not obtainable any other way. The resiliency of rubber or Neoprene is often teamed with the strength and insulating characteristics of Synthane.



9 SPECIAL MATERIALS
Synthane is available in special forms such as this graphited anti-friction Synthane. The inclusion of graphite is desirable on some applications.



10 FABRICATED PARTS
Synthane produces finished parts by machining sheets, rods, tubes or by molded-laminated or molded-macerated processes or by combining machining and molding operations.



SYNTHANE CORPORATION, OAKS, PENNA.

SYNTHANE

Representatives in All Principal Cities

PLAN YOUR PRESENT AND FUTURE PRODUCTS WITH SYNTHANE TECHNICAL PLASTICS · SHEETS · RODS · TUBES · FABRICATED PARTS · MOLDED-LAMINATED · MOLDED-MACERATED



EVER stop to think *why* fighting equipme deals out greater destruction today—lasts longer—takes more punishment? It's due to a lot of things—American initiative, ingenuity—and sometimes just plain dissatisfaction and inquisitiveness. Take simple things like springs. The range of performance has been increased greatly in recent years, but in spite of that, spring failure is practically unknown—certainly unnecessary. It's the result of a combination of scientific methods and practical experience—in materials, design, heat-treatment and tests. The range is greater—because the inquisitiveness of Gibson craftsmen is never satisfied. If you, too, are raising your sights for better mechanical action— use Gibson Springs.

BUY MORE WAR BONDS

ARMY E NAVY

GIBSON SPRINGS

The WILLIAM D. GIBSON CO. DIVISION OF ASSOCIATED SPRING CORPORATION

1800 CLYBOURN AVENUE, CHICAGO 14, ILLINOIS



FOUR KEYS TO RE-CONVERSION

Maybe it's a job of retooling for all-out action in the Pacific . . . but reconversion or retooling, Quality control holds the secret of mass production. These four gage data sheets are ready to go into the mail or come to you by way of a VARD service representative. Ask for them direct or from the nearest VARD dealer. You'll want them in your files and in your production control offices.

VARD GAGE SERVICE ACROSS THE CONTINENT

BIRMINGHAM, ALABAMA
Tool Engineering Service

LOS ANGELES, CALIF.
Machinists' Tool & Supply Co.

SAN FRANCISCO, CALIF.
Douglas & Sturgess

DENVER, COLORADO
Johnson Supply Company

BRIDGEPORT, CONNECTICUT
Ward-Nagel Tool Supply Co., Inc.

ATLANTA, GEORGIA
Fulton Supply Co.

CHICAGO, ILLINOIS
Engis Equipment Co.

INDIANAPOLIS, INDIANA
Daco Tool & Engineering Co.

DES MOINES, IOWA
Globe Machinery & Supply Co.

WICHITA, KANSAS
White Star Machinery & Supply Co.

NEW ORLEANS, LOUISIANA
Murray-Baker-Frederic, Inc.

DETROIT, MICHIGAN
B. A. Taylor Company

MUSKEGON HEIGHTS, MICHIGAN
O. R. A. Industrial Service

MINNEAPOLIS, MINNESOTA
The John C. Eide Co.

KANSAS CITY, MISSOURI
Fred A. Ellfeldt Co.

ST. LOUIS, MISSOURI
Mill Supply & Machinery Co.

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F.O.B. filosofy of buying

COLUMNIST Herb Graffis of the Chicago *Times* takes occasion to characterize purchasing agents in a recent comment:

"The National Association of Purchasing Agents, a canny group of businessmen, reported late in February that 'many plants are loaded with new war contracts which may prove to be greatly overdone and may result in a very serious situation when cancellations come.' Note the use of the word 'may'. The purchasing agents are people who keep a toe on base."

• •

ANOTHER appraisal, probably based on more intimate association with the species, appears in a letter from Donald M. Nelson, read at the recent annual meeting of N.A.P.A. Mr. Nelson learned to rely heavily on purchasing men during those days when he was doing a Superman job as head of the War Production Board throughout its formative period, and this is his testimony:

"I just can never thank you enough for the cooperation you have given me and the war effort. You can always count on me to do anything I can to further the best interests of your Association, because it has been my experience that more than any other group I have met, the N.A.P.A. is always working in the public interest."

• •

WHAT sort of a creature, then, is the purchasing agent? As Exhibit No. 3 we present a note from Art Hopcraft of Cleveland, himself a buyer of long standing and a past president of the National Association. If anyone should be qualified to give the last word on this subject, Art is the man. But with all this splendid background, and a personal acquaintance among buyers that runs well into four figures, here is what he has to say:

"The article by L. T. Thomasma ('The Purchasing Agent Today as the Salesman Sees Him,' May issue of PURCHASING*) is very good. On bad days I can see myself in almost every one of the cases he presents. In fairness to some of us younger PAs who are trying to make good, he ought now to tell us how an ideal Purchasing Agent operates."*

• •

SO there you have it, Mr. P. A. Take your choice. Or better still, bear in mind that fundamental principle in the science of language, that words mean whatever we make them mean, by practice and usage. In other words, the term "Purchasing Agent" means whatever we *are*, individually and collectively. We are writing our own definition every day. Let's make it a good one.

• •

SOMETIMES the best evidence of success in a job is that the job becomes unnecessary. In last month's column we reported the activities of Major George Cronin, Massachusetts State Purchasing Agent, in bucking the poultry black market and seeing that hospitals throughout the state were adequately supplied. After handling 108,000 pounds of poultry and distributing them among 79 hospitals that are normally outside the scope of his responsibility, Major Cronin is able to report that the state has taken the first steps to get out of the poultry business, having concluded agreements with the regular dealers in various sections of the Commonwealth to see that hospital needs are satisfied through normal channels. Now both the dealers and the State Purchasing Department can get back to their proper jobs.

• •

NOW the fighting Major, late ally of the OPA in the poultry campaign, has promptly realigned his forces and is vigorously jousting with his erstwhile comrades in arms in an offensive aimed at getting 1,609,792 pounds of butter out of storage in the state and onto tables before it gets rancid, by urging a realistic readjustment of point

values. In his arsenal of arguments, the big gun is the fact that this supply has more than tripled in the past year, as compared with only 528,000 pounds a year ago, and there are no takers under the present point system. The Boston press reports that State OPA Administrator Eldon Shoup views this sally by his former ally "with little enthusiasm" and has countered with the dire warning that civilian butter supplies are expected to get tighter. But he doesn't deny the statistics.

• •

BY the way, the Western Massachusetts P. A. Association has taken cognizance of these achievements—typical of 22 years of efficient and fearless public service as State Purchasing Agent under eight Governors—by presenting Major Cronin with its 1945 Service Award "to that person who has made an outstanding contribution to the purchasing profession".

• •

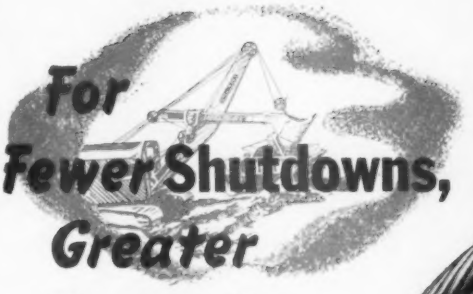
WE who toil in the vineyard of the business press are quickly disabused of any notion that we are producing literature for the ages. Comes another issue, and last month's is obsolete. But once in a while there comes a thrill—as when we received in a recent mail an urgent request for an article from the March 1938 issue. And since that was in the days before paper quotas, it was easier to supply than March 1945.

• •

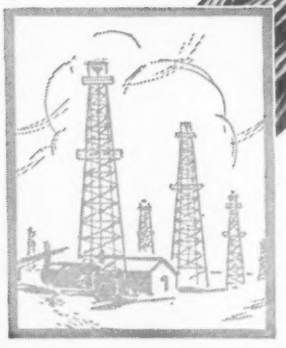
ONE of the important functions of a business publication is to provide a medium for the exchange of ideas and experience on current problems in the field. We have little means of knowing how far that process goes on beyond the initial presentation in the pages of the magazine, but we do know that many helpful contacts are thus established. For example, here's a letter received by J. C. Williams, Priorities Supervisor for the W. L. Maxson Corp. following the publication of his article on "Profit in Priorities":

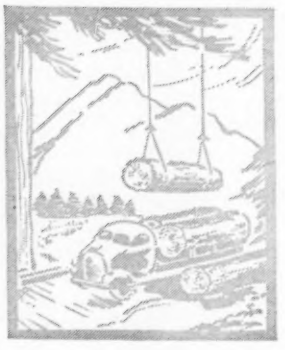
We enjoyed Mr. Williams' article in the March issue of PURCHASING. We would like to have Mr. Williams correspond with us from time to time on problems of mutual interest.

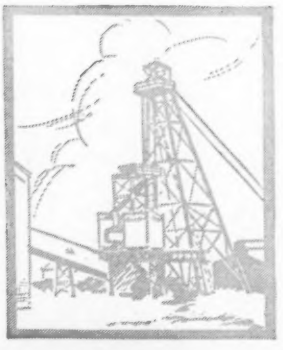
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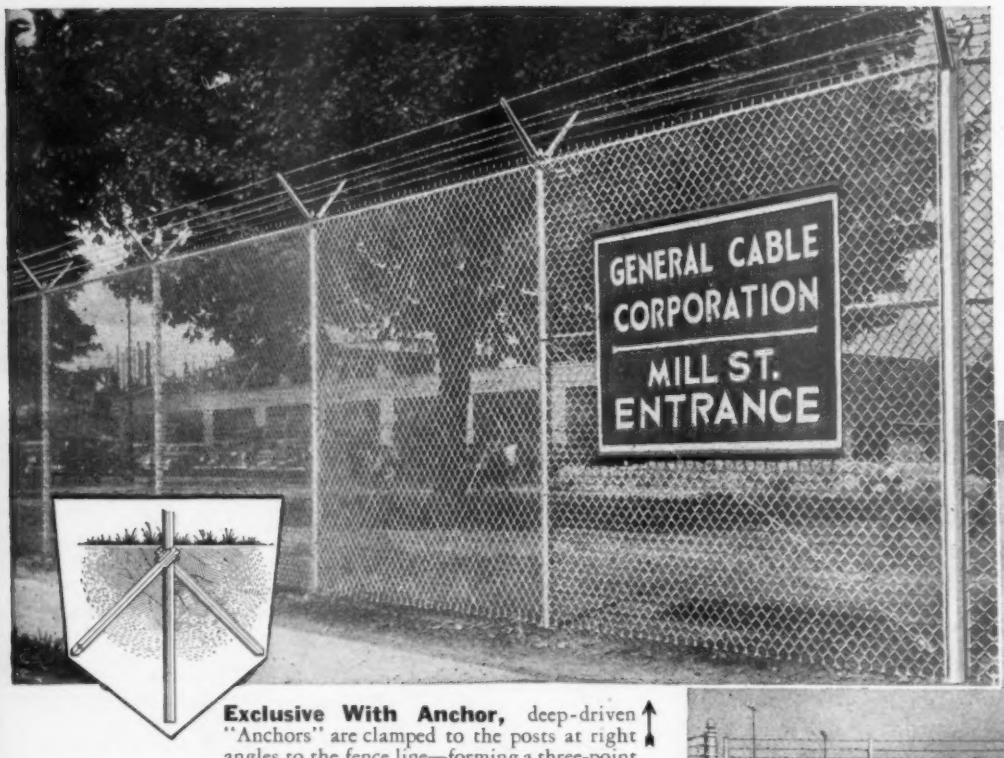
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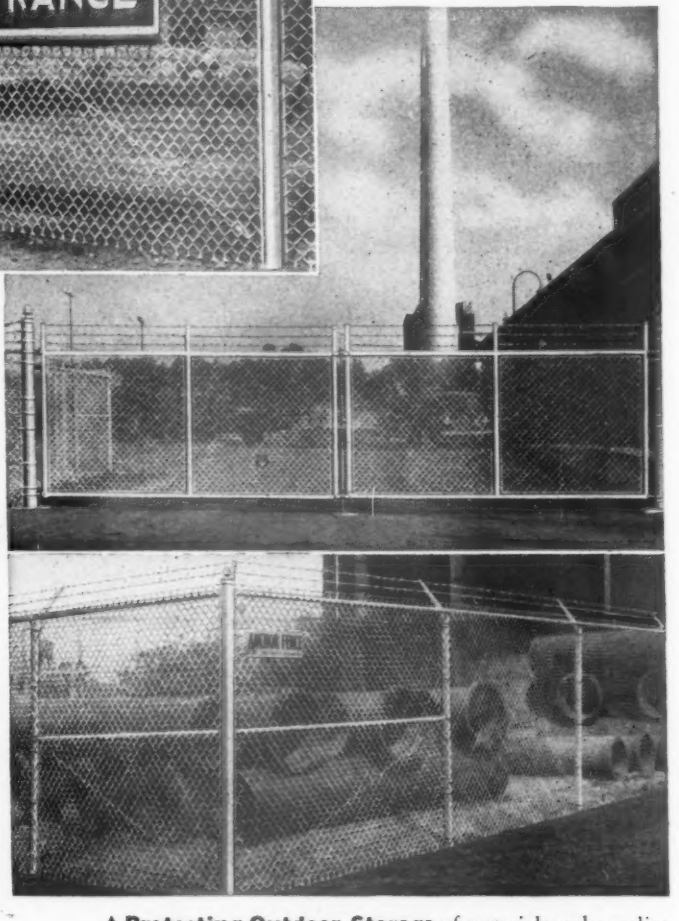
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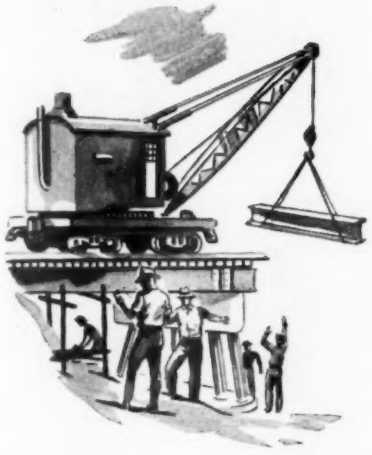
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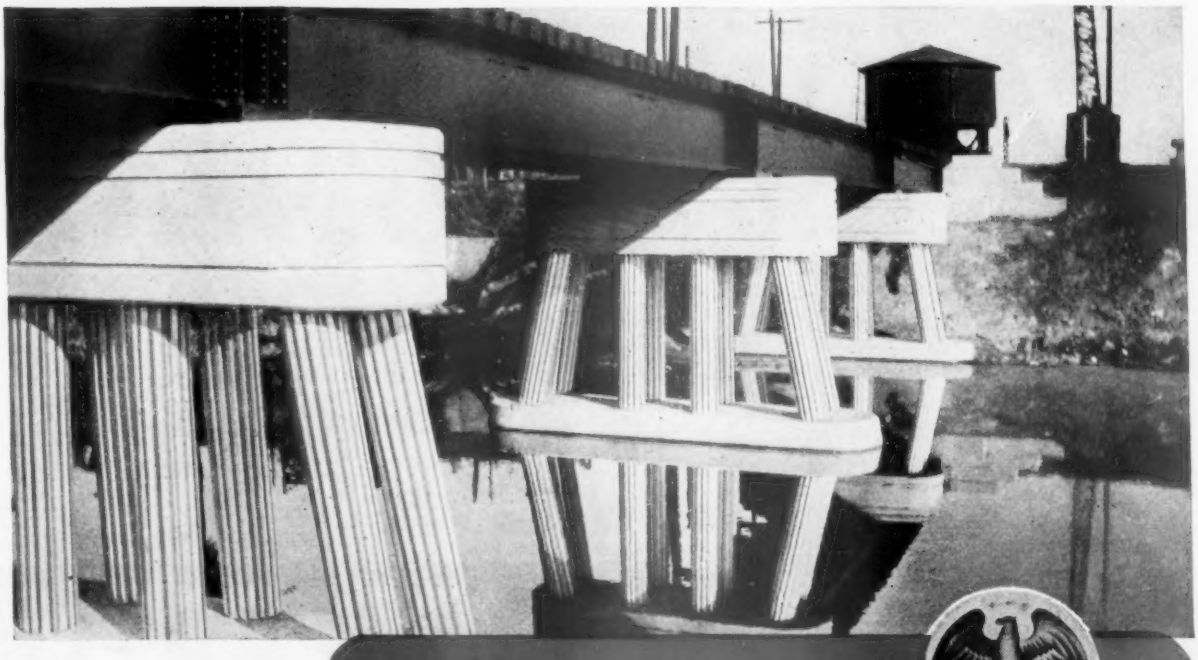


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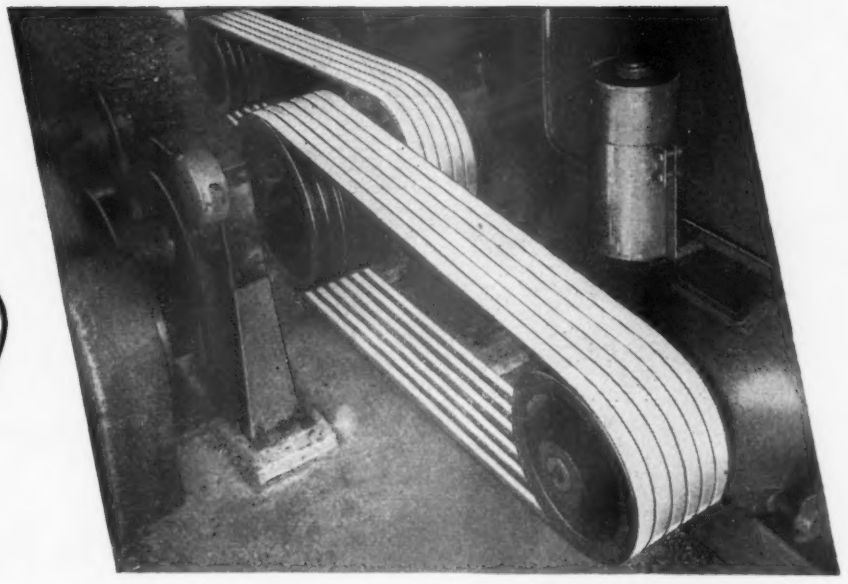
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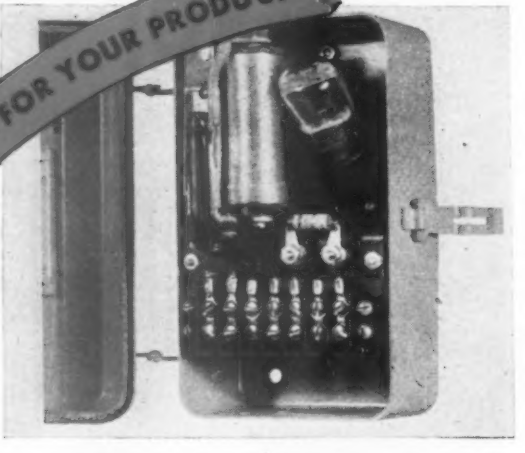
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The National Magazine of Industrial Purchasing

JULY, 1945

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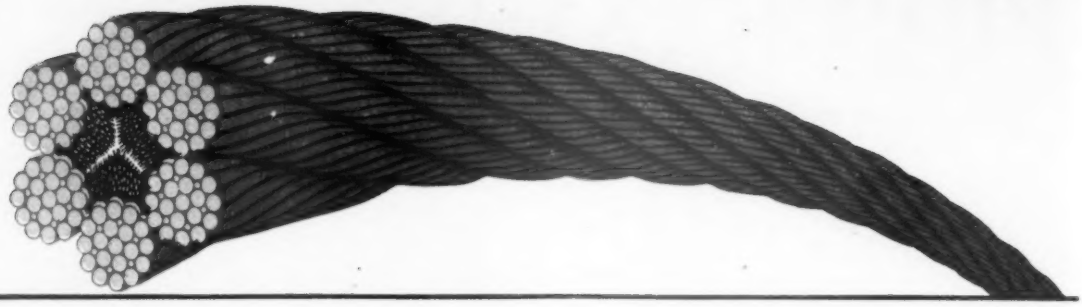
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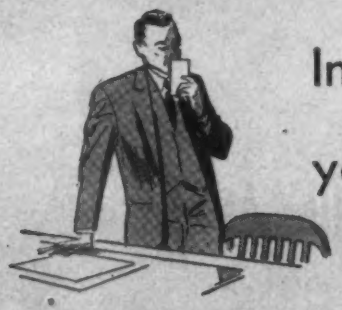
ELSEWHERE in this issue appears a summary of the considered thought of half-a-hundred purchasing executives on the responsibilities which they and their departments will face in the period ahead, when industry makes the transition from an economy dominated by war to an economy of peace. Their detailed conclusions may properly be left to the papers themselves, but the underlying philosophy that directs the thinking of these purchasing men, from every section of the country and in widely diversified industrial fields, is so clear and so uniform that it deserves special comment.

The great lesson of the wartime experience, for purchasing and top management alike, has been that all production and scheduling and planning rests squarely upon the foundation of competent procurement. The record of purchasing men in maintaining that foundation has been one of the outstanding industrial accomplishments of the war. It won—and richly earned—the attention and appreciation of management. It was made possible by the fact that management necessarily called purchasing into the policy and planning councils of the company, so that an integrated program of procurement and production could be formulated and carried out.

In the period ahead, the problems of supply will differ in detail, but this basic principle of organization remains unchanged, imposing a dual responsibility. Purchasing will still be judged in terms of the service that it renders, and that service will be conditioned largely by the degree to which management permits purchasing to participate in the overall planning.

The details are important, of course—the need for alertness and flexibility, the return to economically sound purchasing principles, and the adaptation of new functional procedures developed under the stress of wartime urgency. But they are subordinate to the lesson of complete coordination. Neither the stature nor the status of purchasing can be permitted to revert to prewar standards if we are to achieve and enjoy a strong and efficient postwar industrial organization.

Stuart F. Heinritz



In gauging the potentialities of

your future Far West operations . . .

count on Columbia for Alkalies



THROUGH recently acquired Pacific Coast facilities, Columbia brings to the great far west area the efficient and economical production of basic chemicals so beneficial to the entire industrial economy.

The rich alkali deposits at Owens Lake, California—consisting principally of Soda Ash, Borax and Sesqui-Carbonates—are an important addition to other Columbia resources. Their acquisition is characteristic of the progressive policy which seeks to anticipate the growing requirements of customers to the greatest extent possible.

For complete information on our ability to serve your operations in the far west—present or contemplated—you are invited to consult our General Offices, or the most conveniently located District Office.

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PHILADELPHIA • MINNEAPOLIS • CHARLOTTE • LOS ANGELES

HIGHLIGHTS

A brief summary of outstanding features of timely interest and importance in this issue, to conserve the time of busy readers



The 1945 **N. A. P. A. Convention,** originally scheduled to be held at Chicago in May, goes into the record as a casualty of war, victim of the limitation orders from the Office of Don't Travel. Instead, there was held the annual meeting of the Board of Directors, represented by the Executive Committee. That meeting is reported for you on page 77. Read how this important Association of purchasing men has continued its phenomenal growth and its outstanding service to industry and the nation.

This month's guest editorial introduces the first of a new series, prepared by the recently elected N. A. P. A. Vice Presidents. George Aljian of San Francisco and District No. 1, takes his text from a 17th Century purchasing agent and diarist, for a strictly up-to-date message to the purchasing agents of 1945. His article, **Back to Fundamentals,** appearing on page 71, is a sound and constructive bit of purchasing philosophy, particularly pertinent today as we approach another economic milestone.

There's a lot to learn about the mechanics of contract **Termination and Settlement,** and purchasing men are going back to school for the expert counsel and guidance of specialists in this field. The picture story on page 100 shows the step-by-step procedure by which this training is being made available to business men in industrial centers throughout the country.



Buying for the **Motion Picture Industry** has problems all its own. Our reporter visited the 20th Century-Fox studios to find out all about it, and bring you his story on page 88. You'll probably decide that it violates most of the rules of sensible business procedure. On the other hand, you've probably never been called upon to produce a carload of grapes in the off season, or a few truckloads of beach sand at 6 o'clock Sunday morning, to keep a million dollar production up to schedule. But here's new evidence that purchasing performance is at the basis of production in every field—the story of a buying job that requires the utmost in speed and ingenuity to put shadows on a silver screen.

Leo T. Parker's digest of recent court decisions takes up the matter of **Legal Obligations** involved in contracts of purchase and sale. Turn to page 107 to get the modern interpretation of this important law.

Forward-looking purchasing men are analyzing their job in terms of its **Reconversion and Postwar Responsibilities,** theme of the education Committee's 1945 competition. Results of this anaylsis are summarized in two important articles in this issue—W. E. Prescott's prize winning paper, published in its entirety on page 81, and a summary of all contest papers, appearing on page 85. Check your own postwar thinking with the ideas developed in these thoughtful and comprehensive discussions of a problem that faces every purchasing organization today.



Another question of primary importance is discussed in a prize paper from the student contest sponsored by the Milwaukee Association. How can management and the purchasing executive **Measure Purchasing Performance.** S. W. Krauss analyzes the various factors involved. and outlines a method for the intelligent appraisal of the purchaser's functional responsibilities and the efficiency with which his department meets these standards. His article appears on page 105.

A good deal of attention has been focused on the recent organizational changes at International Harvester Company, as they affect the perennial question of whether **Centralization or Decentralization** is the more effective means of management control. As a matter of fact, the solution at Harvester goes to neither extreme. It is a case of "divisionalization". The article on page 73 explains accurately how this system works, and how it affects the purchasing operation.

While it is fashionable to talk in terms of millions and billions, the sector of industry that is classified as **Little Business** occupies a very significant place in our national economy. Senator James A. Murray points out, on page 102, the importance of conserving the small units as essential sources of supply for big business, and cites some telling examples from wartime experience.

Don't overlook these monthly departmental features compiled especially for purchasing men—the **Washington Letter** on page 43, with its timely and authoritative preview of official trends on matters affecting industry, as gathered by our Washington office; the listing of **Know-How Information,** that is yours for the asking, appearing on page 10; and the illustrated summary of **New Products and Ideas** that are now available for the industrial buyer (page 116), providing a quick and convenient means of keeping up to date on recent developments.



Think Ryerson...
in critical steel situations

Once a battle was lost for lack of a horse shoe nail—you know the rest. At a critical instant, a bit of iron was not available. In the end, so the story goes, a nation was lost.

For more than 100 years, Ryerson Steel-Service has been coming through in critical situations. Our business is steel in stock—11 well located plants with thousands of kinds, shapes and sizes of steel on hand for prompt delivery—with facilities for cutting and otherwise preparing the steel the way the buyer wants it.

From the very beginning our large and complete stocks have been an important factor in the war effort. Bars, plates, structurals from our plants constantly speed to war factories and critical industries. Consequently, our stocks are not always balanced from a size standpoint. But when shortages do occur, Ryerson technical men are often able to suggest an alternative that will do the job. Our whole organization takes tough situations in stride. Let us put Ryerson stocks and skill to work for you next time you need steel. Our steel stocks are the nation's largest, our personnel experienced, and we do our best—now more than ever.

JOSEPH T. RYERSON & SON, INC., Steel-Service Plants: Chicago, Milwaukee, Detroit, St. Louis, Cincinnati, Cleveland, Pittsburgh, Philadelphia, Buffalo, New York, Boston.

RYERSON STEEL



GEORGE W. ALJIAN, Vice President of the National Association of Purchasing Agents for District No. 1, is Director of Purchasing and Packaging, California & Hawaiian Sugar Refining Corp., Ltd., San Francisco. He is a graduate of the University of California, with a chemical engineering degree, and has been with C&H for more than a quarter century, serving in plant and technical departments prior to his appointment as Purchasing Agent twelve years ago. An active member and past president of the Northern California Association, he has made particularly significant contributions to its program as chairman of the important Educational and Publication committees. In National Association affairs, he has served on the Boffey Memorial Award Committee, Shipman Medal Committee, Educational Committee, Textile Committee, and the Committee for Revision of N.A.P.A. Constitution and By-Laws, and was General Program Chairman for the 1939 convention in San Francisco. Immediately after Pearl Harbor, he spent several months in Washington as a dollar-a-year man, assigned to the U. S. Navy Office of Procurement and Material, where he organized and headed a Containers Division for the Navy.

Back To Fundamentals

". . . . Early up and at the office with Mr. Hater, making my alphabet of contracts, upon the dispatch of which I am now very intent, for that I am resolved much to inquire into the price of commodities . . . ."

". . . . In the evening Sir W. Warren came to see me about business, and that being done, discoursing, of woods. I did offer to go along with him among his ships, which we did to half a score, when he showed me the difference between Dram, Swinsound, Christiana, and other woods and told me many pleasant notions concerning their manner of cutting and sawing them by watermills, and the reason how woods became dearer and cheaper, among others, when the snow is not so great as to fill up the vallies and they may pass from hill to hill over the snow, then it is dear carriage. . . ."

". . . . By and by Sir W. Batten and I by water to Woolwich; and there saw an experiment made by Sir R. Ford's Holland's yarn, and we found it to be very bad, and broke sooner than, upon a fair triall, five threads of that against four of Riga yarn; and also that some of it had old stuff that had been tarred, covered over with new hemp, which is such a cheat as hath not been heard of. I was glad of this discovery, because I would not have the King's workmen discouraged (as Sir W. Batten do most basely do) from representing the faults of merchants' goods when there is any. . . ."

By GEORGE W. ALJIAN

Vice President, District No. 1 National Association of Purchasing Agents

DO these quotations revive memories of other days—days when we purchasing agents had complete freedom of choice in the matter and manner of what, when, how, and where to buy—days which are not quite so far behind us as that week in June 1662, 238 years ago, when they were written by that unique diarist, Samuel Pepys, who later in life became one of the top administrative officials of the British Navy. The wording is perhaps quaint—the picture drawn certainly is not. Here is a man with both feet firmly on the ground, a man getting down to the fundamentals of his job. Let it serve as a forceful reminder to us that, as the dust of battle begins to settle, we too must get down to earth again and re-orient ourselves with the fundamentals of our job.

One of the sacrifices demanded by Victory has been the partial cessation of the normal purchasing function. The peculiar combination of Priorities and Maximum Prices has distorted many of the values we consider as basic, particularly in their relationship to an interaction upon each other, and has necessitated a temporary abandonment of many of the principles upon which the mechanics of industrial purchasing are founded.

The coming increased availability of goods must result in substantial relaxations of Conservation, Limitation, and Control; automatically, competition, the price balance of supply and demand, will reappear. Ceiling prices, which have been based on the average cost of an entire industry, will once again revert to being understandable yardsticks of individual achievement and efficiency, tools to be used by the Purchasing Department. Inventory regulations which have kept us teetering between Non-Compliance and

the shutdown of production lines, will be replaced by orderly and controllable policies amenable to price trends and the needs of individual consumers. Conditions of stabilized world trade and of domestic business structures will gradually return; in the accurate interpretation, utilization, and exploitation of these the Purchasing Agent will once again assume a major responsibility and find a major field of potential advantage for his company. A host of completely new materials and processes will be available to industry, many of which may well revolutionize manufacturing costs and procedure.

Start Planning Now

This won't happen overnight—not this month or next—but the change is here, is upon us. Are we ready for this change—this return to normalcy? Have we forgotten how to take full advantage of every detail which affects the cost of what we buy—or of what our company sells? Let us take stock of the way we approach this coming era, to make sure that neither our thinking, our judgment, or our technique has been permanently warped by the hedges, the curbs, the restrictions, the incompatabilities, and the inconsistencies of the war years. Let's get down to fundamentals.

Fundamentals usually sound quite simple. Here are those frequently associated with purchasing: "To buy at the right time, in the right quantity and quality, at the right price." There is nothing whatever new about that; in fact, who can assert that there has been anything startlingly new for thousands of years. Remember the Trojan Horse—and the tank; Icarus—and the airplane; Jonah—and the submarine. Discovery and invention are not duties of the purchasing department; development is. The way we use and develop the tools we have is what counts in the long run. It is fundamental that efficient buying is the religion of purchasing; it is a further and inescapable fact that inefficient purchasing soon shows up in the statement of earnings. The slender profit margins on which modern business exists makes efficient buying at least equal in importance to efficient production and efficient selling. Don't forget that "Goods well bought are goods half sold."

"To buy at the right time"—It would be a brave man, indeed, perhaps even a foolhardy one, who would venture to predict the events of the coming five or ten years—or even two years—with that nicety and precision which would justify spending his company's money on extensive forward purchases. Even under normal conditions of unrestricted business and world trade, forward buying can only be uniformly successful when coupled with profound and continued study of price and business trends. But economic and political trends are now so almost undistinguishable that it may well be several years before long term future buying can be undertaken. For the nearer term, however, we can proceed to base purchases upon studies of price and business trends and upon requirements. The straight line charts of maximum prices are disappearing; business indices, expressionless from all-out production for war, will once more assume character and meaning. Where are all those charts and records we kept in the old days—those fundamental indices of business, money, and speculation which will be our guide in future buying? Is our ground work well laid for their proper correlation under post-war conditions? Now is the time to begin studying these factors, both national and international, which influence what and when we will buy.

Quality and Price Standards

"In the right quantity and quality"—The post-war period promises tremendous changes both in what we are going to buy and what we shall have to sell. Now is the time to expand and perfect coordination and cooperation with other departments of our company. Now more than ever before we should be fully and completely in touch with every change contemplated in production, quantity or style of our own company's products, and with every change made or to be made in our manufacturing processes. More than this, we should be constantly studying substitutes and synthetics, and the host of new processes which will be available in the coming months; not only should these be viewed from their relationship to what we buy, but also from their adaptability to possible adoption in our own manufacturing process. Are we keeping our own sales and production departments fully posted on these new developments as they appear, and are we devoting proper attention to the very important question of packaging? As the various Limitation and Conservation Orders are lifted to permit flexibility in materials use, are we ever watchful to see that the specifications upon which we order give the required performance as economically as possible?

"At the right price"—What we shall ultimately pay for what we buy is conditioned by our efficiency in purchasing at the right time and in the right quantity and quality. It doesn't stop here, however; to buy at the right price does not mean merely satisfying conditions of time, quantity, and quality and then accepting the lowest bid. We should be in a position to know at all times and under all market conditions whether the prices we pay, at least for our major items, represent a fair price both to ourselves and to our suppliers. This raises the question as to whether our records show, from data on past sales, the exact prices paid, the quantities ordered, the value of the raw materials at that time, and the supplier's manufacturing margin? Can we say definitely that it would or would not be more advantageous for us to manufacture a certain item ourselves?

Our relationship to our suppliers has, in many cases, undergone a radical change during the war period. Certain or immediate availability has all too often been of paramount importance, with considerations of price, quality, or desirability of source being relegated to the background. While many of the benefits to be derived from close buyer-seller relationship are of an intangible nature, countless instances of substantial and important dollar savings can be directly traced to an understanding and cooperative relationship. The more we know of our suppliers' business, the more we know of things important to our own. With the countless changes which are upon us, a close supplier relationship is akin to providing ourselves with additional eyes, ears, and industrial contacts.

Lesson of Experience

Throughout the war years we have been called upon to play an old game under new rules. The speed with which purchasing men caught on to the new ways of winning points and the magnificent score they are turning in has greatly increased both their stature and their potential to business. As the old values return, so must observance of fundamentals; to this must be united the added experience we have gained and the broader vision we have acquired, so that it will be the right of Purchasing to present to Management the opportunities of the coming years.

Divisional Organization As It Affects Purchasing

A judicious balance of centralized control and detailed responsibility placed close to operating levels, results in an efficient and economical procurement organization



COL. JOHN MORROW, JR.

Vice President of the International Harvester Company in charge of purchasing, traffic, and war priorities

A veteran of overseas service in World War I, Mr. Morrow spent several years thereafter in Harvester's European organization, specializing in purchasing, and later as inspector-general of all European purchasing operations of the company. He returned to the United States in 1931 to become Manager of Purchasing for the parent company, and was elected Vice President in 1935. He was commissioned a Colonel in the U. S. Army in June, 1942, for important purchasing duties in England during the assembling of our invasion forces, and was later stationed at Algiers in procurement work for the North African campaign and the Mediterranean area. He returned to his duties at Harvester last fall after more than two years of military service.

By STUART F. HEINRITZ

ONE of the perennial moot questions concerning purchasing organization — especially where scattered plant operations are involved—is the extent to which centralization is feasible and economical. The question is generally raised, and violent theoretical opposition to central purchasing voiced, when it is proposed to centralize the control and administration of procurement for units that have previously handled the buying function independently. Of particular interest to management study, therefore, is the current case of the International Harvester Company, where a measure of the purchasing responsibility that has heretofore been strictly centered in the headquarters office at Chicago is now being delegated to the separate plant organizations.

There has been considerable misunderstanding in purchasing circles about what Harvester is doing, and it is important to keep the record straight. Three points in connection with this development should be noted at the outset. (1) It is not, properly speaking, a process of decentralization, but of "divisionalization". (2) It is part of a general management reorganization, affecting not only the purchasing function, but manufacturing, labor relations, accounting, distribution and sales as well. (3) The central purchasing department continues to operate much as before, having delegated some of its duties to plant purchasing men, but applying the advantages of centralization even more effectively in other ways.

Organization is a tool of management. It must be adapted, and revised if necessary, to suit particular needs. The problem at Harvester



R. M. McCULLOCH
Manager of the Purchasing Department

was not merely one of growth in size and of scattered plant locations, but primarily the variety of products. The solution, determined about a year and a half ago and progressively put into effect since that time, is a divisional type of organization, setting up the Motor Truck Division, Farm Tractor Division, Industrial Power Division, Farm Implement Division, Refrigeration Division, and Twine & Fiber Division. Most of these division involve the operation of several separate plants, but each group is unified as to the character of its product. The new arrangement was explained to employees by President Fowler McCormick in the February, 1944, issue of *Harvester World*, when the plan was first getting under way. He said in part:

"A division, in the sense in which we now use the term, is a new unit in our Company. It differs from a department in that a department deals with only one function, such as engineering, personnel, or sales, whereas a division is a group of departments each of which is concerned with its own functions, but all of which are interested in the same product or group of products.

"The head of a division is a general manager who reports directly to the president. The general manager will have under him as heads of the various groups a manager of engineering, a manager of manufacturing, in some cases a manager of sales, a manager of supply and inventory, and a divisional comptroller.

"A division, with its general manager reporting directly to the president, is an autonomous unit in the sense that it is charged with the responsibility for the design, production, and, in some cases, sales of a given product or group of products, and that it will operate with a large degree of freedom of decision and action in reaching its objectives. Its autonomy and its freedom, however, are contained within the framework of established Harvester policy and procedure. It also will be guided by the influence of the vice presidents and the departments under their supervision."

In setting forth the purposes of the new plan, President McCormick's first point was:

"To reduce the number of operating responsibilities carried by our higher executives, thus giving them more time for policy formation and forward-looking planning, and also to accomplish the desireable result of placing more responsibility and authority in position closer to the operating levels."

As the new type organization stands today, the President, of course, is the operating head of the company. He is assisted by a First Vice President and a Second Vice President, both of whom have general authority. The rest of the upper management of the company is divided into two groups, a staff group and an operating group. The heads of departments in the staff group are all Vice Presidents. All Vice Presidents and all General Managers report directly to the President.

The operating divisions, which form the operating group, are headed by Vice Presidents or by General Managers. The officer group, together with the General Managers of Divisions and the Director of Public Relations, constitute the Executive Council of the company, which serves as an advisory body to the President.

The Purchasing Department

Now let's see how this affects the purchasing function. At the central office, the departmental organization concerned with requirements and procurement of materials is unchanged. There is a Vice President



R. A. FISCHER

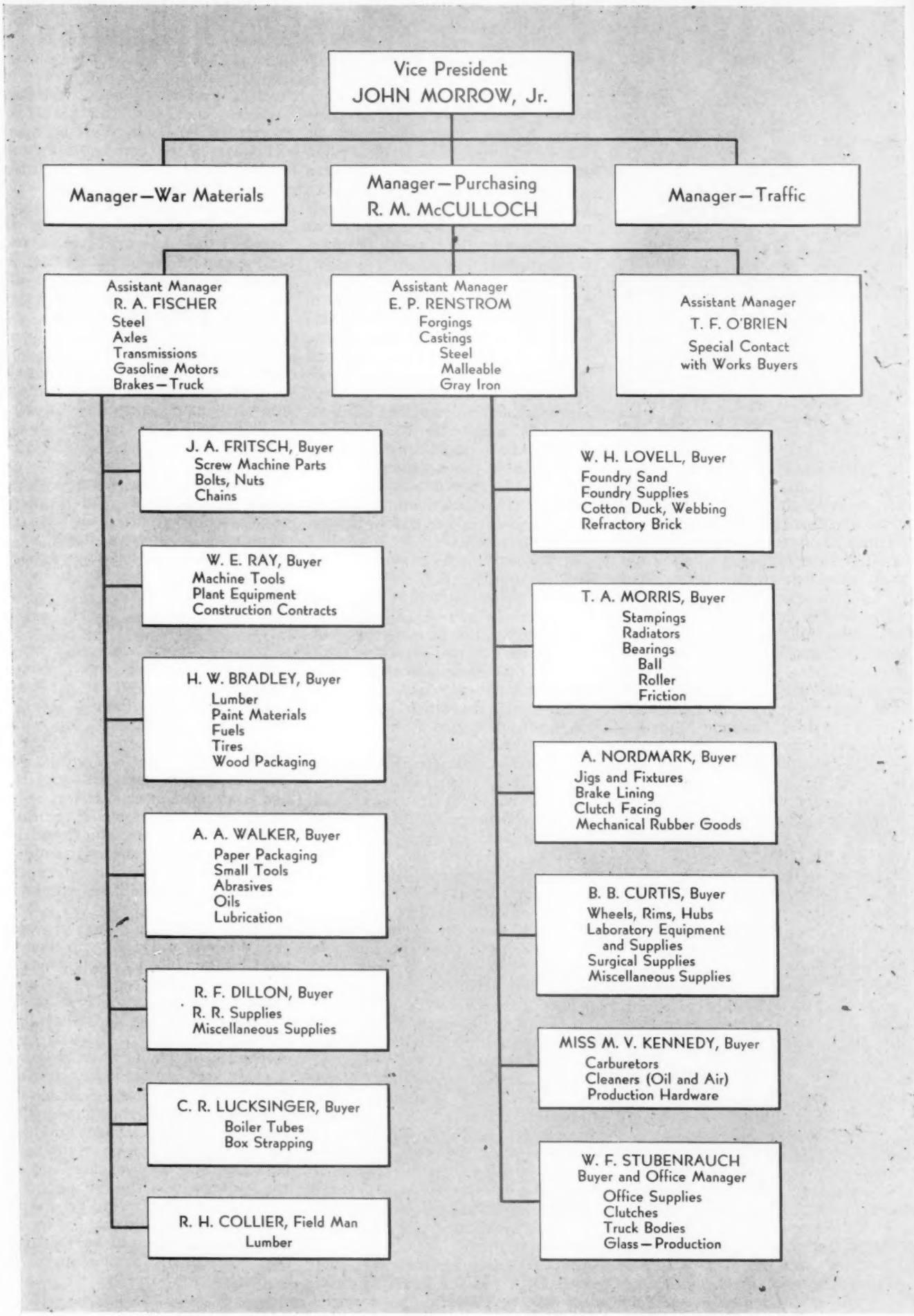


E. P. RENSTROM



T. F. O'BRIEN

Assistant Managers Purchasing Department


Vice President
JOHN MORROW, Jr.
Manager—War Materials
Manager—Purchasing
R. M. McCULLOCH
Manager—Traffic
Assistant Manager
R. A. FISCHER
Steel
Axles
Transmissions
Gasoline Motors
Brakes—Truck
Assistant Manager
E. P. RENSTROM
Forgings
Castings
Steel
Malleable
Gray Iron
Assistant Manager
T. F. O'BRIEN
Special Contact
with Works Buyers
J. A. FRITSCH, Buyer
Screw Machine Parts
Bolts, Nuts
Chains
W. E. RAY, Buyer
Machine Tools
Plant Equipment
Construction Contracts
H. W. BRADLEY, Buyer
Lumber
Paint Materials
Fuels
Tires
Wood Packaging
A. A. WALKER, Buyer
Paper Packaging
Small Tools
Abrasives
Oils
Lubrication
R. F. DILLON, Buyer
R. R. Supplies
Miscellaneous Supplies
C. R. LUCKSINGER, Buyer
Boiler Tubes
Box Strapping
R. H. COLLIER, Field Man
Lumber
W. H. LOVELL, Buyer
Foundry Sand
Foundry Supplies
Cotton Duck, Webbing
Refractory Brick
T. A. MORRIS, Buyer
Stampings
Radiators
Bearings
Ball
Roller
Friction
A. NORDMARK, Buyer
Jigs and Fixtures
Brake Lining
Clutch Facing
Mechanical Rubber Goods
B. B. CURTIS, Buyer
Wheels, Rims, Hubs
Laboratory Equipment
and Supplies
Surgical Supplies
Miscellaneous Supplies
MISS M. V. KENNEDY, Buyer
Carburetors
Cleaners (Oil and Air)
Production Hardware
W. F. STUBENRAUCH
Buyer and Office Manager
Office Supplies
Clutches
Truck Bodies
Glass—Production



GEORGE W. THOMPSON

Veteran receptionist at the general purchasing office. His genial and helpful personality has won him a host of friends among those who call on International Harvester Co.

in charge of Purchasing and Traffic—Col. John Morrow, Jr. Under his supervision are a Manager of the Purchasing Department, a Manager of the Traffic Department, and a Manager of the War Materials Division (the latter largely an expediting function). R. M. McCulloch, Manager of Purchasing, heads a staff that includes three Assistant Managers and twelve Buyers, all actively engaged in purchasing. The one change in this department has been the addition of the third Assistant Manager, who serves as the direct contact man between the Chicago office and the works buyers. A detailed outline of this departmental organization is shown herewith.

Prior to the change, all buying was done in Chicago, and a storekeeper at each plant was responsible for seeing that the materials came into the plant and were properly stored and distributed. Now there is a Works Buyer at each plant, reporting to the Superintendent; his function ceases at the point when the material is received. Under the new arrangement, the storekeeper takes over at this point and is responsible for material in and out of stores. The storekeeper reports to the Works Material Controller, who is in turn responsible to the Superintendent.

The works purchasing departments vary according to the size of the plant, and may comprise anywhere from two to a dozen men. In one of the larger plants, the Works Buyer's staff would include an assistant to share the responsibilities of administration, and a group of key men—assistant buyers and follow-up — assigned to particular commodity groups. As noted above, the Works Buyer is a member of the Superintendent's staff and is on the Superintendent's payroll. He is responsible to the Superintendent for the performance of his procurement function, and is under his jurisdiction in respect to local regulations such as office hours and general discipline. In the conduct of his buying operations, he responds to overall policy and regulations as determined by the Chicago purchasing department.

How Purchases Originate

On production materials, the Materials Control department at the works originates the requirement to the Buyer. Each manufacturing order is referred to Materials Control, which breaks it down into a bill of materials, authorizes the schedule and materials purchases needed to meet the finish date, and advices the buyer of the quantities and deliveries needed. With this information in hand, the Works Buyer may follow one of three courses:

1. He may place the order direct with the supplier if there is a contract or price agreement in force, negotiated by the Chicago office, merely noting that it is ordered out against that contract.

2. He may issue a local purchase order, for such materials as are procured locally or which have been specifically delegated to his authority.

3. He may refer the requirement to the Chicago purchasing department for action or for advice. All new requirements are referred to the Chicago office, even if they are to be reassigned to the works for purchase. This keeps the central purchasing department buyers informed on what is being bought, and gives them an opportunity to decide how the purchase can best be handled. If it is to be purchased by the Works Buyer, they can frequently give some very helpful information as to what it ought to cost and the most likely sources of supply. Stampings, for example, are among the items that the Works Buyer purchases. But on a new stamping, the Chicago buyer, through his wider familiarity with the product and his personal knowledge of suppliers' facilities, is generally in a position to suggest what suppliers are best equipped in plant and experience to handle the particular item.

Bulk contracts for materials, and purchase orders for items in common use at several plants, are handled in the Chicago purchasing department. This has a dual advantage in that it retains the force of the company's collective buying power, and that it frequently involves matters of major company policy. Stocks of coal, coke, and scrap, for example, must be maintained at levels equal to an established policy determined by management. Stocks of foundry sand, difficult to handle during the winter months, are built up during the summer to a determined level, and, at the same time, advantage is taken of transportation facilities. i.e., water, or combination rail and water. Iron ore is stored in sufficient quantity during the open season of navigation to guarantee the continuous operation of the steel mills.

Such considerations—as well as the tremendous quantities involved —lend themselves very logically to centralized purchase. With the delegation of an increasing number of detailed local items to the Works Buyers, there is a greater opportunity for the purchasing department to give effective attention to contract items, and many more such agreements have been made under the new arrangement.

Burden Items

Burden items are handled on stockroom requisitions to replenish stores in accordance with predetermined inventory limits at each plant. The purchasing procedure follows the same pattern as for production items. Control over the volume of such requirements and usage is attained in several ways—by requiring that old tools be returned before new ones are issued, and by monthly summaries of consumption that serve to keep the inventory standards in line with current rates of use.

Copies of all purchase orders issued by Works Buyers are sent to the Chicago office for review by the appropriate buyer, enabling the purchasing department to be of maximum service to the divisional purchasing personnel. Invoices are checked at the plants where delivery is made, and are rechecked at Chicago by the Auditor of Disbursements before payment is made. The Manager of the Chicago Purchasing Department checks no invoices. He does approve vouchers which are in excess of a specific amount.

It is a basic principle of procedure in this organization that no price is given final approval by the man who made it, nor quality approved by the buyer who placed the order.

(*Continued on page* 304)

Annual Meeting of N. A. P. A.

ODT cramps convention style but Executive Committee carries out Chicago assignment as scheduled

ARMED with the necessary proxies to make the proceedings official, and with the guidance of an unusually fine series of District Council meetings preceding the annual gathering, the Executive Committees for 1944-1945 and 1945-1946 met at the Stevens Hotel, Chicago, May 20th through May 23rd, for the thirtieth annual meeting of the National Association of Purchasing Agents. Travel restrictions had ruled out the normal type of convention this year, which would have drawn some 2,500 to 3,000 purchasing executives to the Chicago conclave. The program committee had proposed as alternatives either a "convention by mail" or a radio-telephone hook-up for synchronous local meetings throughout the country, but both of these suggestions had been rejected after mature deliberation and a canvass of general opinion. So, in a triumph of the democratic representative form of administration that characterizes this organization, the twenty duly elected officers served for their 9,000 constituency.

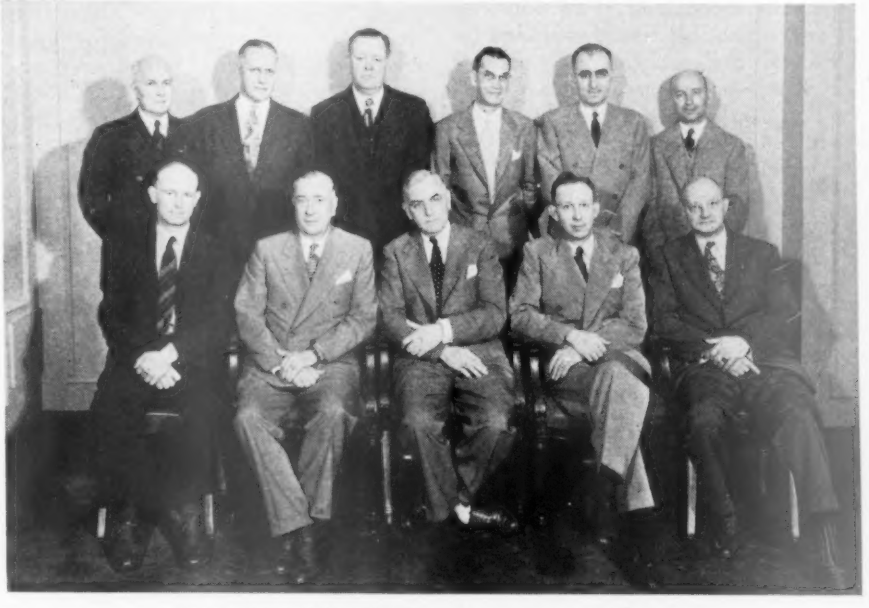
No Mayor, No Bishop

In calling the meeting to order, President Swanton remarked: "We have no mayor to welcome us, no bishop to pray for us, no audience to listen to us, and no big shots to talk to us." Lee Bussmann of St. Louis, looking in on one of the sessions, exclaimed, "How we have shrunk!" Nevertheless, after three days of intensive discussion and action, it was the consensus that this annual meeting had accomplished a solid and constructive piece of work on behalf of the Association.

The committee which completed its term of office at this time consisted of R. C. Swanton of Winchester Repeating Arms Company, New Haven, Conn., President; Ben R. Newbery of Lone Star Gas Company, Dallas, Texas, Past President; Lee R. Forker of Quaker State Oil Refining Corp., Oil City, Penna., Financial Officer and Vice President for District No. 6; George S. Drury of Northwest Lead Company, Seattle, Washington, Vice President for District No. 1; Carl Wuerpel of Community Public Service Company, Fort Worth, Texas, Vice President for District No. 2; C. M. Oberling of National Lock Company, Rockford, Illinois, Vice President for District No. 3; George C. Mercer of P. R. Mallory & Company, Indianapolis, Vice President for District No. 4; Julian G. Davies of N. Slater Company, Ltd., Hamilton, Ontario, Canada, Vice President for District No. 5; George H. Cole of Alabama Power Company, Birmingham, Vice President for District No. 7; E. P. Scully of Engineering & Research Corp., Riverdale, Maryland, Vice President for District No. 8; and Charles L. Sheldon of the Hood Rubber Company, Division of B. F. Goodrich Company, Watertown, Mass., Vice President for District No. 9.

In the new organization which took over the reins at the Chicago meeting and will serve through the coming year, Mr. Sheldon was elected National President and Mr. Swanton serves in his capacity as Past President. A. W. Zackey of the Manganese Steel Forge Company and Audubon Wire Cloth Company Philadelphia, takes over the dual responsibility of Financial Officer and Vice President for District No. 8.

Others on the board are: George W. Aljian of California & Hawaiian Sugar Refining Corp., Ltd., San Francisco, Vice President for District No. 1; Owen D. Story of Shell Oil Company, Houston, Texas, Vice President for District No. 2; Roy F. Stiles of Stewart-Warner Corporation, Chicago, Vice President for District No. 3; Leslie E. J. Stonehouse of Westover-Kamm Company, Bay City, Michigan, Vice



EXECUTIVE COMMITTEE, N. A. P. A., 1945-1946

Seated (left to right): William J. Mackay, Montreal; Robert C. Swanton, New Haven, Conn.; President Charles L. Sheldon, Watertown, Mass.; W. S. Flinn, Chattanooga; A. W. Zackey, Philadelphia

Standing (left to right): R. F. Stiles, Chicago; W. F. Avery, Cleveland; O. D. Story, Houston; Leslie E. J. Stonehouse, Bay City, Mich.; George W. Aljian, San Francisco; Everett A. Taylor, Providence



CHARLES L. SHELDON

The new President of N.A.P.A. is Purchasing Agent of the Hood Rubber Company, a division of B. F. Goodrich Company, Watertown, Mass. He is a native of Rutland, Vermont, and joined the Hood organization thirty-five years ago, as a lad of eighteen. Starting in the Stores Department, he was transferred to purchasing work shortly thereafter, and was appointed Purchasing Agent in 1920.

He is an active member of the New England Purchasing Agents Association, and served as president of that organization in 1936. He was elected to the National Executive Committee in 1944, as Vice President for the New England District. For the past eight years he has directed the work of the N.A.P.A. Committee on Containers. Nationally recognized as an authority on packaging, his forum meetings on container and packaging materials and problems have been an outstanding program feature for the N.A.P.A., American Management Association, and other business organizations.

From October, 1941, to April, 1943, he was loaned by his company to the Containers Division of the War Production Board. For much of that time he served as Director of the Division. He is currently serving as consultant in the Office of the Rubber Director of WPB.

Mr. Sheldon has found time to take an active interest in community affairs in his home town of Watertown, Mass., as a member of the Town Board and formerly on the Finance Committee. He was recently instrumental in securing the appointment of a Purchasing Agent to assist in assuring a businesslike administration of municipal affairs.

The Sheldon family group includes a son, Charles, Jr., now a Technical Sergeant in the U. S. Army Air Corps, and three daughters, Sylvia, Betty, and Joan.

President for District No. 4, William J. Mackay of A. F. Byers Construction Company, Ltd., Montreal, Vice President for District No. 5; William F. Avery of The Elwell-Parker Electric Company, Cleveland,, Vice President for District No. 6; W. S. Flinn of The Simplicity System Company, Chattanooga, Vice President for District No. 7; and Everett A. Taylor of the Providence Gas Company, Providence, R. I., Vice President for District No. 9.

Committee Activities

Reports of Executive Secretary George A. Renard and of the standing committees reveal a year of constructive, well planned, and resultful activity, and show the Association to be in healthy condition from every viewpoint. The Business Survey Committee monthly reports have been revived under the able direction of George E. Price, Jr., of the Goodyear Tire & Rubber Company, Akron. The Haney Barometer Charts and a new series of studies on War Conditions in Commodities, by Col. George S. Brady, have been presented. A new edition of the Officers' Manual is being prepared, with the assistance of Russell Forbes, former Commissioner of Purchase, New York City, and former Assistant Secretary of the Association.

The Committee on Education announces a new expanded outline for courses in purchasing, and a new pamphlet of problems, discussion material, and suggestions for local forum meetings and advanced seminar courses in purchasing, both scheduled for publication this fall. This work has been carried forward under the direction of Chairman F. A. Hayes of the American Hide & Leather Company, Boston, and Prof. Howard T. Lewis of Harvard Graduate School of Business Administration. Results of the essay contest on "The Purchasing Department's Reconversion and Postwar Responsibilties" were not available at the time of the meeting, but the judging was in its final stages and confidence was expressed that many sound contributions to the thought on this important subject would be forthcoming from this activity.

The splendid work of the Committee on Public Relations, inaugurated during the past year under the leadership of Vice President Julian G. Davies, will be continued, and Mr. Davies has been prevailed upon to continue on this assignment. Another project that will be carried on to completion is the study of the measurement of purchasing department efficiency, under the chairmanship of former Vice President George C. McCaffrey of the Owen Dyneto Corp., division of Electric Auto-Lite Company, Syracuse, N. Y.

Membership at New High

Outstanding in the year's record was the phenomenal growth of the Association, from a membership of 8,292 a year ago to an all-time high of 9,252. Two new local groups were admitted to the National organization—the Florida Association, with 43 members under the leadership of E. P. Danese of U. S. Martime Commission at Jacksonville, a former member of the Chattanooga group, and the Association of Muskegon, Michigan, with 33 members, under the leadership of M. R. Ramsey of Continental Motors Corporations. This brings the roster up to 71 active chapters in industrial centers throughout the United States, Canada, and Mexico.

Even without these new accessions, the membership had climbed well above the 9,000 mark, without any special membership campaign, and in fact with a distinctly selective policy in accepting applications. Chicago has passed New York to take top rank as the largest single Association, both of these chapters now numbering more than 600 members on their rolls.

Constitution Revised

The proposed revision of the N. A. P. A. constitution and by-laws was carried by a vote of nearly three to one. The action represents no fundamental change in N. A. P. A. policies or objectives, but rather serves to bring the constitution officially in line with practices that have been found practical, desirable, and satisfactory in actual operation. Effect of the revisions is (1) to detail and formalize the procedure for electing the Association President, in accordance with policy developed over the past several years, and (2) to clarify the position of the Board of Directors as the governing body of the Association, acting through District Council meetings.

Resolution on Government Controls

An important resolution was passed regarding governmental policy on wartime emergency regulations and controls, advocating their removal at the earliest practicable time. The text of the reso-

lution is as follows:

We believe it should be the established policy to remove and relax war emergency regulations on materials and production as soon and as rapidly as is possible to do so.

We believe industry and business will handle themselves, under such a policy, in a sensible manner; and we believe overbuying or inventory hoarding should be avoided.

Controls must be retained to make certain the Armed Forces have top priority to secure ample supplies for quick and complete victory in the war; and, after that, only to the extent required to assure a smooth reconversion of our industries to civilian production.

The War Production Board has done a commendable job in handling the material and production controls, and we have complete confidence the results will be satisfactory, provided there is a continuance of the present policy of relaxing and discontinuing these controls as rapidly as the need for them ceases to exist.

The objective should be complete freedom from emergency controls on, and emergency organizations for controlling the activities of industry.

Given such freedom, it is our belief that industry will accomplish the reconversion from wartime to peacetime production speedily, and in a manner which will be to the best interests of the Nation.

A TRIBUTE TO N.A.P.A.

"I just can never thank you enough for the cooperation you have given me and the war effort.

"You can always count on me to do anything I can to further the best interests of your Association, because it has been my experience that, more than any other group I have met, the N.A.P.A. is always working in the public interest."

—Donald M. Nelson

While this action represents a departure from established Association policy of making no official commitment on controversial national issues or exerting any pressure on the course of national legislation and policy, it was justified on several counts. The fundamental importance of the subject in its relation to national and industrial economic welfare, and to the future of the private enterprise system, makes it a proper subject of concern for every business group. Throughout the wartime emergency period, the N. A. P. A. has been called upon to consult with governmental bureaus and to assist in the promulgation, interpretion and administration of the various controls. Particularly pertinent is the fact that key members of the Association had been circularized within recent weeks, at the request of the War Production Board, with an exhaustive questionnaire bearing on control policies and their continuation, revealing practical unanimity of opinion on the subject among purchasing men. It may be significant to note that an announcement by WPB Chairman Krug within a week after the close of this meeting substantially confirmed the policies advocated in this resolution.

1946 Convention

No definite plans can be announced at this time for a convention in 1946. The same uncertainties in respect to the progress of the war and the availability of transportation facilities exist today as a year ago, and the Association is committed to complete cooperation with government regulations and recommendation on this point. On the other hand, the annual convention has a large place in the educational program of the Association; it has been sorely missed this year, and sentiment is strong for its resumption at the earliest possible time. Secretary Renard's report declared that "preparations should be made for a 1946 convention that will be a double header in practical information and assistance." To this end, a special committee will meet at the time of the Canadian Conference in September to survey the situation as it then appears, and to bring in a recommendation to the Executive Committee. If travel restrictions are withdrawn, and the green light is given to business gatherings, as hoped, there is general agreement that Chicago, which had offered its hospitality for the 1945 meeting, should be given a rain check and awarded the 1946 convention. The Stevens Hotel has given assurance that its facilities would be placed at the disposal of the Association in that event.

On Tuesday evening, members of the Executive Committee and their



SHIPMAN MEDAL AWARD

". . . . has traveled the length and breadth of our land promoting the interests of purchasing agents and their profession, giving freely of his time and talents to any movement looking toward better and more scientific purchasing . . . ."



THIRTIETH ANNUAL MEETING
". . . . no mayor, no bishop, no audience . . . ."

wives were guests of the Chicago Association for dinner and entertainment.

Shipman Award

In a crowded banquet hall (Private Dining Room 3C, capacity—24) the concluding luncheon session was held on Wednesday noon, with President Swanton presiding. Program Chairman John P. Sanger of Chicago, President C. A. Awsumb of the Twin City Association, Stuart F. Heinritz and Stanley J. Smith, Editor and Western Manager of PURCHASING Magazine, were present as invited guests.

President Swanton announced the first order of business as the report of the Shipman Medal Award Committee, and read the citation:

The National Association of Purchasing Agents, on behalf of the Purchasing Agents' Association of New York, as a mark of highest

(*Continued on page* 307)

N.A.P.A. MEMBERSHIP AT ALL-TIME HIGH

Association	Members
District No. 1	
British Columbia	66
Los Angeles	460
Northern California	379
Oregon	100
Utah	51
Washington	223
	1,279
District No. 2	
Dallas	93
Fort Worth	56
Houston	136
Oklahoma City	57
Tampico	3
Texas Panhandle	27
Tulsa	123
	495
District No. 3	
Chicago	630
Denver	62
Kansas City	105
Milwaukee	175
Rock River Valley	46
St. Louis	213
Tri-City	31
Twin City	129
Twin Ports	21
	1,412

Association	Members
District No. 4	
Central Michigan	43
Detroit	276
Fort Wayne	55
Grand Rapids	48
Indianapolis	136
Kalamazoo	31
Muskegon	33
Saginaw Valley	57
South Bend	28
	707
District No. 5	
Central Ontario	46
Essex-Kent	51
Hamilton	169
Montreal	253
Toronto	264
Winnipeg	38
	821
District No. 6	
Akron	78
Canton	54
Cincinnati	166
Cleveland	366
Columbus	82
Dayton	106
Northwestern Penna.	40
Pittsburgh	256
Springfield	67
Toledo	112
Tri-State	37
	1,364

Association	Members
District No. 7	
Alabama	92
Chattanooga	31
Florida	43
Georgia	37
Louisville	88
Memphis	37
New Orleans	151
	479
District No. 8	
Baltimore	81
Buffalo	128
Carolinas-Virginia	123
Eastern New York	65
Elmira	59
Lehigh Valley	97
New York	617
Philadelphia	409
Reading	34
Rochester	105
Syracuse	138
Washington, D. C.	41
	1897
District No. 9	
Connecticut	191
New England	332
Rhode Island	179
Western Mass.	96
	798
TOTAL MEMBERSHIP May 23, 1945	9,252

The Purchasing Department's Reconversion and Postwar Responsibilities

Prize paper in the 1945 competition conducted by the Education Committee of the National Association of Purchasing Agents

By WINTHROP E. PRESCOTT
Purchasing Department
Walmorth Company
Boston

THERE is a challenge to the purchasing department to solve the problems and to discharge the responsibilities with which it will be faced in the reconversion and postwar periods. The efficient organization of the purchasing department must be a basic consideration before attempting to meet these problems and responsibilities.

The subject of the Purchasing Department's Reconversion and Postwar Responsibilities may be resolved into at least two major parts, (1) the added or new responsibilities resulting from war conditions, and (2) those continuing responsibilities which have lacked proper attention or development to the greatest extent before and during the war. For the purpose of the problem at hand the former part, added or new responsibilities, is the more important.

Contract Termination

One of the earliest responsibilities with which the department will be faced is that of contract termination and settlement negotiations, which should include pretermination planning. It should take an active part in settling claims promptly with vendors and subcontractors, and in being prepared to defend their rights, if necessary, since these same vendors and subcontractors may have to be relied upon for assistance during the reconversion period and even into the postwar period. The purchasing department must be cognizant of the fact that goodwill for its company and itself may be either gained or lost by its attitude during termination negotiations, and that valuable and loyal vendors and subcontractors can be gained.

The purchasing department should determine whether, in the process of termination, any materials are



WINTHROP E. PRESCOTT

salvageable or useable that might be of value in the reconversion or in the postwar production of the company's regular product. It should also determine whether contract terminations in neighboring plants will result in useable materials or idle productive capacity.

In addition, the purchasing department in handling terminations can perform invaluable service to its company by conducting negotiations in such a manner that the company's claim may be filed and thus settled expeditiously. This will involve organizing the purchasing department to quickly and correctly prepare for, and transact, negotiations with vendors and subcontractors, and effect settlement of their claims promptly. In this way the company may maintain its financial position in order to reconvert quickly to peacetime production. If prompt settlement with subcontractors is not always possible, assistance should be planned to enable them to secure interim financial aid if and when necessary.

The increased tempo of research during the war period will contribute in great measure to improved materials, methods and equipment for industry postwar. If the purchasing department is properly organized, it will be the first unit of a company to learn of the development of improved and substitute materials, methods and equipment which could be used by the Company in the manufacture of its products. Knowledge, alone, of these developments is not sufficient, unless the information is transmitted to other departments, which can give it practical consideration. It is necessary that the purchasing department have management approval of a definite procedure to be followed, so as to forestall any tendency on the part of other departments to treat lightly any information, however trivial it may seem, which might prove of value. Such a procedure could well lead to enhancing the prestige of the purchasing department by including responsibility and participation of the purchasing department in reaching decisions on the use of new, improved or substitute products. The purchasing department should take responsibility not only in seeking information, but in determining the value of new equipment and new methods, as it is in such an excellent position to compare and determine the utility of new ideas, methods and equipment on the market.

Subcontracting

A re-examination of sources of supply should include a consideration of the subcontracting phase, which has gained so much in momentum during the war. In some instances, subcontractors have been able to reduce the costs of subassemblies, parts and tools, and a study should be made by the purchasing department to determine whether it will be more or less profitable to continue the subcontracting of such items, with attention to the caliber of performance during the war. In many cases, the subcontractor has equipped himself to produce more

The 1945 Member Competition sponsored by the Education Committee of the National Association of Purchasing Agents dealt with the topic: "The Purchasing Department's Reconversion and Postwar Responsibilities." Winners of the four equal awards, in alphabetical order are:

DONALD H. LYONS, Johns-Manville Corp., New York, member of the New York Association.

STANLEY L. MAYO, Freeport Surphur Company, New Orleans, member of the New Orleans Association.

WINTHROP E. PRESCOTT, Walworth Company, Boston, member of the New England Association.

WYMAN S. RANDALL, Rust Craft Publishers, Inc., Boston, member of the New England Association.

Each of the winners receives a $25 War Bond from the Association. The two New England members win, in addition, special awards of $100 War Bonds offered by the local group as an incentive to its members to participate in the competition.

At the recommendation of the judging committee, Mr. Prescott's paper is published in its entirety, and a summary of all other contest papers has been prepared, to put in permanent form the various ideas presented. This summary appears on the pages immediately following.

Preliminary judging committees were comprised of Association members at:

***Birmingham*—Clyde H. Porter, George L. Wilson, Herman C. Green.**

***Chicago*—Fred J. Heaslip, Eugene S. Page, G. R. Zeiss.**

***New York*—Benedict Van Voorhis, Henry T. Coates, A. Clohosey.**

The final judging committee consisted of:

DAVID C. PRINCE, Vice President, General Electric Co.; Vice Chairman, Field Development Committee, Committee for Economic Development, Schenectady, N. Y.

ERNEST H. HAWKINS, General Purchasing Agent, E. I. du Pont de Nemours & Company, Wilmington, Del.

EDWIN G. BOOZ, President, Booz, Allen & Hamilton; President Association off Consulting Management Engineers, New York, N. Y.

efficiently than perhaps the buying company, since the sub-contractor has had not only to meet a cost, but also to provide a profit for himself.

The purchasing department must examine the performances of all suppliers: those added during the war, those used previous to the war, and possible new sources entering the field for the first time. This latter group will undoubtedly make a powerful bid, and attractive, for recognition during the early reconversion period. It will require, however, a deeper investigation than merely price and delivery, since the purchasing department will need to consider the responsibility and experience of these newer possible sources. In addition, the department will owe some loyalty to sources of supply which gave satisfactory or exceptional service prior to the war, and those who have performed exceptionally during the war. There will almost certainly be appeals for special consideration to be given vendors represented by returning veterans of World War II for business to be awarded in their direction. Controversial as this issue may be, and regardless of the outcome of considerations of the other possibilities mentioned, the final decisions must be based on the purchasing department's responsibility to utilize sources of supply which from all angles are most profitable for the company.

Government Regulations

The purchasing department must be prepared to be familiar with a considerable volume of government regulation, relating to taxes, labor, materials and prices. Regulations promulgated by WPB and OPA may be extended into the postwar period, and may influence the availability of materials of all kinds. A close study of such availability will be of extreme importance, prior to and during this period. The purchasing department must assume responsibility during the early future for full knowledge of OPA and other governmental pricing policies, because of the probability that the economy will be faced with price control for an indefinite period of time. In the later period, of course, controls may be on the price floor instead of the ceiling. To buy materials to best advantage, the purchasing department will have to temper the knowledge of markets and market conditions with the probable and actual trend of regulatory pricing. Supply and demand will continue to influence the movement of prices, but within limits which may continually be changed by regulation.

Since, in so many instances, the purchasing department is responsible for priorities and allotments, an intimate working knowledge of the procedures for securing reconversion and perhaps even postwar materials and equipment will be fundamental, particularly spot authorization or whatever procedures may follow.

Availability of Materials

Another point that should be emphasized is the need for speed in thinking and acting during the Reconversion period. All manufacturers will be racing to reconvert to peacetime production to gain the advantages of being first in the competitive market; with a consequent drain on all productive resources. The accomplishment of speedy reconversion will be largely in the hands of the purchasing department as their responsibility will include prompt action in securing the necessary equipment and materials. This will call for a tremendous effort to locate materials and equipment which can be delivered when and as needed. During the early postwar period the availability of all materials to a manufacturing unit will be of utmost importance in regaining markets with a quality product, and it will be the responsibility of the purchasing function to locate not only proper materials of proper quality, and arrange for delivery as needed, but to lay plans for such procurement well in advance.

The purchasing department will probably be obliged to continue to regulate its purchases by at least modified allocation controls, and many, particularly those who have been manufacturing war materiel, will no longer have the support of the armed services to assist them to properly anticipate requirements. Under these circumstances, it will be necessary for the purchasing department to continue a close control over purchases to assure the pro-

curement of a proportionate share of the available materials. Regardless of the length of time which some or all manufacturers may be protected by C.M.P. or some priorities system, it is obvious that when all controls are finally lifted, those companies which secure their needs will have to exercise the utmost in ingenuity, anticipation and keenness, in the competitive situation that will undoubtedly follow.

It is probable that follow-up and expediting of purchase orders will be most important in early postwar buying. Most departments purchasing for war must have installed or evolved an improved system of expediting which can serve as a basis for postwar, using experience so gained to modify, improve or enlarge these functions. Transportation problems should be considered a purchasing department responsibility insofar as placing purchase orders is concerned. With the probable transportation conditions which will exist under an economy producing under full speed during the reconversion and postwar period, suppliers within reasonable distances and who are so located as to have alternative shipping methods should be selected.

Surplus Materials and Equipment

The fullest utilization of surplus materials and equipment must be made a responsibility of the postwar and reconversion purchasing department. It is suggested that the keynote of this utilization will be the proper organization of the department to take advantage of this surplus. In setting up this organization some research will be required to determine methods of best screening offerings, listings and availability. It is certain that familiarity with the availability of surplus will place any company in an enviable position in the procurement of some requirements at a lower cost and better delivery. It is inconceivable, in view of the quantity and variety of materials which will be declared surplus, that most manufacturers will not be able to locate at least a portion of their requirements in this manner.

Speed in bidding for and securing surplus material and equipment will be of utmost importance because of the professed policy of surplus disposal agencies to sell as great a quantity as promptly as possible. The quick disappearance of surpluses through sale to industry will stop its entry into illegitimate channels of sale, in which case markets could be demoralized and reconversion retarded. It has been suggested that the surplus disposal agencies may favor negotiated sales of surplus to accelerate disposal, in which case the purchasing department must have qualified personnel to handle such negotiations. Under these conditions it must be concluded that procedures and organization must be instituted to take full advantage of surplus materials and equipment.

Intra-Plant Costs

In reference to costs of plant operation, as distinct from the cost of materials, the department should accept responsibility for becoming thoroughly familiar with costs of operation, and their trend. While this appears to be an accounting or production department function, it should be pointed out that the purchasing department is in an excellent position to determine whether improved methods or equipment, or subcontracting can lower constant or increasing costs. A real service can be performed in this direction as the production and engineering departments, or even management, are often so close to the problems of increasing cost that they overlook the possibilities for solution, which should not be the case of the purchasing department, with its numerous outside contacts. The department can place itself in an enviable position, by studying cost of operation, and being able to advance suggestions to decrease costs before other departments are even aware of the increasing trends.

Public Relations

An excellent opportunity will exist to advance the Company interests, through improved relations and contacts, not only with vendors, but with other purchasing departments through trade organizations and publications. In this the purchasing department must absorb some of the psychology of the sales department, particularly in contacts with vendors. In other words, vendor's representatives should be afforded as much consideration and attention as a buyer would receive at a vendor's plant —in normal times. No purchasing department can afford not to accord visitors, regardless of the purpose of their call, courteous, intelligent and prompt attention, not only because of their possible value to the department, but because this contact may be the only one which the visitor will have with the Company, and his impression can become a liability or an asset to the sales department.

The purchasing department should take responsibility for efforts to install purchasing representation on local planning and development committees, to assist in the formulation of policies and programs that are basically sound from an industrial, as well as a material procurement, point of view. All too often the purchasing phase has been ignored on committees of this nature, with greater emphasis on political and welfare representation, whereas purchasing experience can contribute great practical and economic assistance. This program can be accelerated by enthusiastic and active support to purchasing and other business organizations. In this connection, the accomplishments of purchasing personnel in assisting in the formulation of workable regulations during the war should be remembered. There will be opportunity to continue to perform service of this nature in the years to follow, possibly along the lines of lifting these same wartime regulations, and some contribution can be made toward improved public relations through this means, both individually and collectively.

A passing word should be added concerning the responsibility of purchasing departments to the profession. Probably no other single business group has gained more prestige during the war for a job well performed than purchasing personnel. A discontinuation of the effort and thought that accomplished this would be betraying the group, with such a challenge to industrial purchasing departments as exists in postwar and reconversion problems. The purchasing function has greater importance and recognition than ever, and the opportunity to maintain and increase this importance is indeed great, and all concerned must accept responsibility not to allow this reputation to disappear.

Community Responsibility

The purchasing department will have some responsibility in the postwar and reconversion period to the local area in which it operates and to the general national economy. Granted that this responsibility cannot be discharged by a single department, but as a group, cohesive or otherwise, tremendous influence can be exerted that will have far reaching results. By the policies adopted, purchasers can contribute to a high employment and production level in their local area by the studied placing of contracts and orders. Con-

tribution to a healthy business condition cannot help but assist in creating a healthy market in which to buy and healthy surroundings for the purchaser's own company operations. The leveling of the fluctuations of the business cycle can be considerably assisted by purchasing department through the exercise of intelligence and planning in their purchases. It can be noted that scare buying has often raised havoc with both prices and demand, when, as in late 1937, there was little need for any misgivings as far as supply was concerned. A cautious, well-founded, buying policy can remove difficulties of this nature and all purchasing departments should take some responsibility for consideration of the impact of their buying policies on the local and national economies.

Intra-Plant Relations

The purchasing department should seek, during the reconversion and postwar periods, an improvement in its relations with other departments within the same organization. A more intimate contact with manufacturing departments, through shop employees, foremen and superintendents will be of real educational value, as well as increase the cooperation which can be expected from this group. This can be done best by establishing personal contact in the shop, time-consuming to be sure, but profitable through the gain of knowledge of technical, mechanical and manufacturing problems, as well as through the suggestions that may be offered to improve the purchasing job itself. Purchasing has become more and more a specialized function, and by such specialization can actively take over from other departments full responsibility for purchasing, thereby relieving those departments for increased attention to their own specialty. It should be the policy of the department to insist that all problems connected with procurement and purchasing be handled by the purchasing department, without stifling the interchange of information between vendors and other departments, as only in this way can purchasing reach its highest efficiency.

The secondary part of the department's reconversion and postwar responsibilities will be to attain improved performance of those duties which had not reached the greatest possible development up to the beginning of the war. It is the responsibility of the purchasing department to plan an early return to the proper performance of these duties.

Inventory and inventory control in the postwar and reconversion period will be of greater importance than ever. In those companies where inventory is the responsibility of the purchasing department, particular attention should be centered on maintaining stocks which will insure plant production at the desired levels, without obsolescence that well might hurt a company's earnings position through a lack of flexibility. WPB has certainly contributed toward this goal by restrictive inventory limitations, particularly in the case of those companies who have continued to produce their regular line of products throughout the war. It has previously been suggested that new materials, equipment, methods, and ideas will play an important part, and the company maintaining high protective reserves of materials may find itself in a position of not being able to utilize these new possibilities. It will be an important responsibility of the purchasing department to practice selective buying in the accumulation of inventories to preclude such unfortunate results.

Inventories

While delivery and inventory requirements cannot be definitely established for some months, perhaps before the end of both wars, the purchasing department should hedge its position as much as possible to cover possible requirements. Many suppliers will now accept purchase orders for postwar delivery, agreeing to enter these orders promptly upon the lifting of production restrictions. This may at least secure a position in a production schedule. In some instances, working agreements with vendors can be made. In this way, some manner of protection can be secured without the necessity of maintaining high inventory reserves.

Costs and Prices

Costs and prices may assume a greater importance in postwar than in any period since early depression days, and certainly the purchasing department will be charged with the responsibility of procuring materials on the best possible price basis consistent with quality. This duty will continue as fundamental. It has already been suggested that one method of reducing costs may be through the use of surplus war materials. Beyond that, however, it will be necessary that the purchasing executive be more familiar than ever with markets and market conditions surrounding the important commodities his company buys. To accomplish this, information must be secured in greater volume and screened more carefully, through the medium of publications, associations, services and personal contact.

Systems, Reports and Records

Throughout the war period, emphasis sometimes has had to be placed on substitutes or on location and availability of materials, rather than on cost and quality. These exceptional situations were created by shortages for which no one in particular can be blamed; but the purchasing department must always get value in the prices paid for materials, and must give increasing attention to quality. Attention to quality, particularly during the reconversion period, will become increasingly important in order to give a company first position in postwar markets, so that it may incorporate into its products improved materials and parts, rather than continuing the use of "war quality" materials.

The fundamental basis on which any department must function is its organization, and its reorganization or improvement in its organization should be the first thing to be considered in preparation for postwar responsibilities. It is suggested that at least the following phases be considered.

The purchasing department can well afford some attention to its physical plant, particularly along the lines of more efficient machines and systems in which there has been considerable development during the war. Efficient equipment can well cut the costs of operating the department and relieve personnel for handling the many new responsibilities.

The purchasing department should examine all its reports and records with special emphasis on simplification in order to provide management with necessary information required for financial and inventory reports, without unnecessary detail.

Specifications and Standardization

During wartime, it is probable that in many instances, the use of specifications has become almost impossible, due to the necessity of substitutions. The purchasing department should take some responsibility for reviving the use of company specifications, and for having them revised and rewritten so as to be entirely practical for normal use. It should be the practice to remove

(*Continued on page* 310)

Purchasing Men Evaluate Their Postwar Job

A digest of the papers submitted in the 1945 Member Competition of the National Association of Purchasing Agents

IN approaching the reconversion and postwar period, purchasing men are fully aware that they will be called upon to face a new and difcult set of problems that will challenge to the utmost their resourcefulness and accumulated experience. They do not seek a formula to answer all the purchasing problems that may arise. There are too many uncertainties and variables in whatever lies ahead—particularly as to the degree in which certain conditions will develop, and the timing of the changes. Rather, their attitude may be summarized in the statement, from one of the prize-winning papers: "The purchasing department should be staffed by people who can quickly adapt themselves to any given set of conditions—people who always remain alert and flexible." They have some practical ideas on how such flexibility can be attained. For these are distinctly down-to-earth papers, the distillation of realistic thinking.

Furthermore, they recognize that the relatively exalted status of purchasing departments in wartime derives partially, and perhaps primarily, from the force of outside circumstances. It has resulted from the extraordinary conditions of supply, focusing attention on the procurement function as the necessary foundation of production. But it has been earned by the demonstrated ability to cope with these conditions effectively. It follows that the opportunities and responsibilities of postwar purchasing likewise center around the concept of effective functioning under a new set of conditions. Almost invariably, the topic resolves itself, in these discussions, into the question: How can the purchasing department best serve the total company operation? It is a sound and constructive state of affairs when purchasing, or any other function, resolves to pull its full weight for the good of the firm.

The war experience has been a two-way benefit. Purchasing men have not only served, but they have learned a lot about their own job in serving. This is apparent in respect to attitude, policies, and procedures. Perhaps the most important effect has been that the horizon is broadened for both management and purchasing agents, as to the potentialities inherent in good purchasing.

What Lies Ahead

As to the particular conditions that may be expected, a variety of opinions were expressed, some in considerable detail. General opinion was that the entire development should be viewed as a continuous process of change, rather than as two separate stages of reconversion and postwar operation, and that attention should be concentrated on the ultimate objectives. In other words, reconversion in purchasing, as in production, is a transitional stage. The long view is the more important. And the time to plan and organize, that these long range objectives may be attained, is now.

There are of course some immediate responsibilities to be handled in connection with the transition. Outstanding among these is the termination of war contracts. The purchasing agent's part is to keep his inventories and commitments in order, to pass along cancellations promptly to subcontractors and suppliers, to maintain the materials records required to support his company's settlement claim, and to effect prompt and fair settlements with his suppliers, assisting them with their claims when necessary. In connection with renegotiation, he must be prepared to show efficiency and dispatch in ordering, a reasonable policy in respect to forward buying, inventories and suppliers' inventories, and a proper regard for costs. Basically, however, these are the means of speeding the transition period and arriving at the comparative stability of postwar conditions.

From among the many economic and business factors to be considered, including such broad subjects as foreign trade policy, taxation, new methods of transportation, and the like, there are six which stand out as being especially pertinent to purchasing. These are:

- A return to norman conditions of supply and delivery, under a competitive system.
- The gradual relaxation and eventual abandonment of government controls over materials and prices.
- The impact upon markets of war surplus disposal.
- New materials available and new requirements.
- A new alignment of suppliers, and possible new sources of supply.
- Changes in costs, and a new emphasis on the cost factor, in respect to both materials and operations.



STANLEY L. MAYO
Purchasing Agent
Freeport Sulphur Company
New Orleans



WYMAN S. RANDALL
Purchasing Agent
Rust Craft Publishers
Boston

In almost every case, the element of timing is as important as the development itself. The purchasing agent must have foresight, and be prepared with a plan of action. To quote further from the statement cited in the opening paragraph, "Postwar, the purchasing department should continue its study of economics. It should know how to interpret trends—know how to use information and statistics published by government, private economists, and the like. It is not suggested that the purchasing department be made up of economists, but those engaged in purchasing have a responsibility for analyzing and interpreting data prepared by economists." This thought is expanded in other papers to include the responsibility for assimilating such trend data from all sources—general observation, vendor contacts, and special research. The purchasing agent must keep his finger on the business pulse in order to do a proper job.

Responsibility for Planning

One point on which opinion is practically unanimous, is the necessity of having purchasing included in company planning councils. This has been general practice during the period of war production, due to the critical position of many materials and supplies. It is no less essential under the new conditions, and the purchasing agent must be aggressive in retaining that status. The effectiveness of planning, and of purchasing to effectuate the plans, depends on such coordination.

For example, postwar sales and production schedules depend on materials just as truly as in the case of war production requirements. Particularly in the early stages, competition for materials is likely to be keen. There is a strong probability that new materials—new in the sense of recent developments or in the use of materials not previously purchased—may now become standard. Perhaps these decisions have been made without exploring all of the market possibilities; and perhaps they are not the best decisions in relation to existing equipment, commercial standards, and available sources. In any case, the success of the plans depends on the ability to get the required materials favorably, reliably, in the proper quantity, and on schedule. The old axiom of buying is as true as ever, that successful procurement of 95% of components may still rate zero in completion of the desired end-product.

Preliminary Questions

Or take the case of new equipment needed in a reconversion or expansion program, possibly extending over a considerable period of time. There are many questions that must be answered: What is wanted? When is it wanted? When will it be available? Shall we order now for the future program? What price can we afford to pay? If there is no firm price now, what type of contract are we willing to make? These are all problems of purchasing, and the purchasing agent must be appraised of the plans sufficiently in advance that he may be able to make recommendations as to a plan of action, and to carry out that plan.

A vast amount of preliminary work is involved in such procurement to insure the proper selection of sources, proper timing, and speed of action. The purchasing agent must start as promptly as possible to check the requirements and facilities of his own company, and the facilities of proper suppliers. This must be done on the basis of known manufacturing and sales schedules. As one paper expresses it: "The purchasing agent should not do his planning as a lone wolf, but with the authority, approval, and cooperation of other departments." Purchasing must be a partner in planning in order to do its own work effectively and to give maximum service and assistance to other divisions of the business. This means that close contacts must be established, or solidified, with top management, production, engineering, cost, sales, and other departments.

New Materials

A great deal has been said about the part that new materials will play in postwar manufacturing. The purchasing agent must keep in touch with such developments in order to undertake their procurement intelligently and to evaluate their possible advantages in relation to his company's operations. He has a growing responsibility to initiate the consideration of those that promise advantage, and to promote their use.

Purchasing agents are in a strategic position to learn about such materials through their sales contacts and through the Association service, and it is their responsibility to pass this information along to design and operating executives. But it is no passive responsibility. It has often been demonstrated that while much information of this nature naturally comes to the purchasing department, it is still necessary to search for the best materials and sources, and to see that salesmen and suppliers are fully informed concerning the things that the company uses and makes, lest good purchasing opportunities go by default.

Wartime experience with substitute materials has also armed the purchasing department with practical and valuable new means of judging relative values, from both quality and commercial angles. It is equally significant whether these substitutes have proved to be merely a temporary expedient or have worked out with equal satisfaction or even better performance than the previous standard. Perhaps the greatest lesson from this experience is the danger of freezing established specifications and the desirability of maintaining a maximum of flexibility in respect to materials.

Sources of Supply

The selection of supply sources is the particular responsibility of a purchasing department. It comes up for special attention now because many of the established supplier relationships were disrupted by wartime, and as we emerge into the postwar period a new alignment of suppliers appears. New companies have come into the field, and new facilities have been established. Some of the previous sources have changed their products and marketing policies. Wartime performance has been highly enlightening in respect to efficiency, progressiveness, and eager-

ness to serve, and these factors are written into purchasing department records, for better or worse. Prewar loyalties have been intensified, or have cooled, and new loyalties have been developed.

It is generally agreed that, whatever the buyer's personal inclinations may be in relation to any particular source, the selection of suppliers for postwar business will be on an increasingly selective basis. To that end, an analysis of possible sources — which is always a responsibility of purchasing—is a very positive responsibility now. Among the factors mentioned for special consideration are: demonstrated manufacturing efficiency; equipment modernized and in good condition; facilities equal to meeting the postwar schedule of requirements; progressive management and a record of leadership in new developments; attention to research; wartime service record. All signs point toward a period of keen business competition, with success dependent on merit of product and performance. There will be competition for markets, pressure on purchasing to maintain a favorable competitive position for his own company, and selection of vendors on a competitive basis.

Setting a Policy

One of the papers presents a form for item-by-item analysis of purchased parts, showing wartime and prewar practice, as a guide to postwar policy. Among the factors tabulated are: (1) whether purchased fully or partly fabricated; (2) long or short term inventories required; (3) subcontractor performance, rated under three headings: satisfactory and reliable, satisfactory if pushed, and unreliable; (4) substitute materials, rated as: less satisfactory than the original, equal, better, or of permanent value; (5) comparison of total material and production costs. These factors are weighed for the final evaluation.

This emphasis on competition does not imply that former policies of loyalty to satisfactory sources and close cooperation with vendors are to be abandoned. Rather it indicates that there may be some reshuffling of these relationships through the transitional period. There are many indications that good buyer-seller relationships are highly valued and are to be cultivated more assiduously than before. One of the more radical suggestions, advanced with some hesitation but with apparent sincerity, is an exchange arrangement whereby purchasing department representatives of the customer and of major suppliers spend some time working in the other organization, so as to gain a better mutual understanding of the buyer's requirements and the seller's production problems, resulting in more intelligent procurement and more satisfactory supply.

Two other points were raised in regard to supply sources. One of these relates to the possible resurgence of reciprocity as a tool of business when controlled distribution ends. The establishment of a reciprocal policy as a matter for top management to decide, but since it deals with vendor contracts and relationships, which are the province of purchasing, it should be administered by the purchasing department in the same way that a department of industrial relations deals with matters affecting labor.

The other point has to do with the current emphasis on foreign trade, a national policy based on the premise that sound world economy must be based on two-way trade. It is not within the scope of these papers to decide or even advocate what the policy should be. However, it would seem to place a responsibility on the purchasing agent to investigate the possibilities of foreign sources so that this information may be on hand and later transactions decided on their merits in the event that this type of buying becomes a major factor of business policy.

Cost Reduction

It is agreed that emphasis will be placed on cost reductions in the postwar competitive era, and purchasing agents must be prepared to pay closer attention to this factor than during the war period, when costs were subordinated to the urgency of demand and to availability of materials. Price analysis and market studies are nothing new in purchasing, but represent rather a return to basic principles in buying.

The broad subject of material costs, however, involves a great deal more than price considerations, and wartime experience has contributed many ideas of efficiency in the materials program than can well be applied in postwar operations. Among the suggestions most prominently advanced are: better inventory control and turnover; prompt disposal of surplus and obsolete items; greater attention to standardization; recommendations for more efficient handling and storage of purchased materials; improved utilization of materials and equipment.



DONALD H. LYONS
Buyer, General Purchasing Dept.
Johns-Manville Corporation
New York

The last-named factor is not strictly a purchasing responsibility, but it is reflected in the purchasing program, and the purchasing agent is frequently in a position to make helpful suggestions based on the materials themselves. It indicates the advisability of another return to fundamentals, namely the cultivation of closer relationships with the men in the plant who are using the materials and supplies, and a regular program of "plant visits" in the buyer's own operating departments to see at first hand how these materials are used.

A further point affecting costs is the administration of the purchasing department itself. Procedures should be carefully reviewed and placed on the most efficient basis possible. Adequate mechanical aids and labor-saving equipment should be installed for carrying on the purchasing routine and records. Such equipment has not been available during the war period, and the purchasing department may be as much in need of rehabilitation as the plant facilities. Improved methods result in better service as well as in lower costs. There is also a major problem in personnel, but this properly comes under a separate section.

The Purchasing Staff

The general opinion is that purchasing department personnel will be curtailed in the postwar period; in fact, that trend is already appar-

(*Continued on page 318*)

Buying For The Movies Is A Service Function

The purchasing department of the 20th Century-Fox studios doesn't fit the industrial pattern, but it handles a difficult and specialized assignment most effectively.

By FRED M. BURT

INDUSTRIAL purchasing, in which the majority of requirements are recurrent and with some uniformity of pattern, is of course by no means devoid of its major problems, particularly in these days of priorities, pressures, and a paucity of products to purchase. But in one respect, purchasing for a major motion picture studio has a major problem that is peculiarly its own, and that is the constant necessity for a "tennis game technique" —in which the active participants must always be poised for decisive, immediate action, though never knowing for sure which way they must jump, yet being very adept at functioning the instant the proper move is made apparent.

For seventeen years, Alex Kelly and Ronald Barrows, Purchasing Agent and Assistant Purchasing Agent of the Twentieth Century-Fox Film Corporation at Los Angeles, have worked in close association, developing and operating the purchasing and allied control system now in use. This system has been tailored to meet the specific and special demands put upon it, while keeping pace with the great expansion of the company, efficiently to meet the ever-growing diversity of supply requirements, predictable and unpredictable. The necessity for coping competently with unpredictable demands, having a time element of "Right Now", is a main factor in the evolution of these methods.

Due to the nature of the film production business, this department is conditioned to accept, the sudden responsibility for meeting a multiplicity of demands that would be considered, in nearly any other business, as unjust impositions or screwball ideas, accepting these duties as something to be taken in stride.



Alex Kelly and Ronald Barrows

. . . an effective purchasing team with seventeen years experience

A good example is "The Case of the Midnight Sand", when Mr. Barrows was called up one Saturday evening, close to the midnight hour (Mr. Kelly kindly allows Mr. Barrows to shoulder full purchasing responsibility after 10 P.M.) with the imperative request that 30 tons of sand be delivered on Stage 5, before 5 A.M. on Sunday, for use in a beach scene. "Can do," he said, and then phoned around until he caught up with the manager of a sand and gravel company, a regular vendor, who in turn routed out a crew of truckers. The sand was delivered on schedule. All in the day's (and night's) work. Vendors, too, must be conditioned to this type of procurement.

About this time your industrial purchaser will be muttering about the lack of foresight and planning, and will be making mental calculations of the extra costs involved in such a procedure. But that's the way a requisition is likely to come, and the main point of the story is that the experience gained, and the ingenuities developed, in meeting so many sudden and unusual demands, have built up capacities that enable this department to obtain on short notice nearly anything the imagination can devise, making procurements in some cases directly and quickly, and in other instances having to use leads to leads that lead eventually to the desired sources.

So here's another example. Two tons of grapes were needed for a wine-making scene when it was off-season in California and in other states— no ripe grapes at all. But there were plenty in South America, and intensive investigation developed the fact that a shipload from there was about to dock in New York City. The ship was met, the grapes were purchased and rushed across the continent in a refrigerator car to be made available when needed.

Rush order requisitions come in for items as diversified and out of the ordinary as: slabs with bark on to represent log cabins, sea nets, anchors, various ship parts, deck equipment, yucca and balsa wood, bee-keepers' supplies, cobble stones, drumhead skins and tomtoms, crows' eggs, acid for fog effects, gypsum snow, glass made from candy, grasshoppers, live fish, old-fashioned quill pens, railroad ties, telephone poles, street lighting standards, shale, salamanders, sawdust, tulle mats, natural leaf tobacco, thatched roof panels, volcanic rock, and many others.

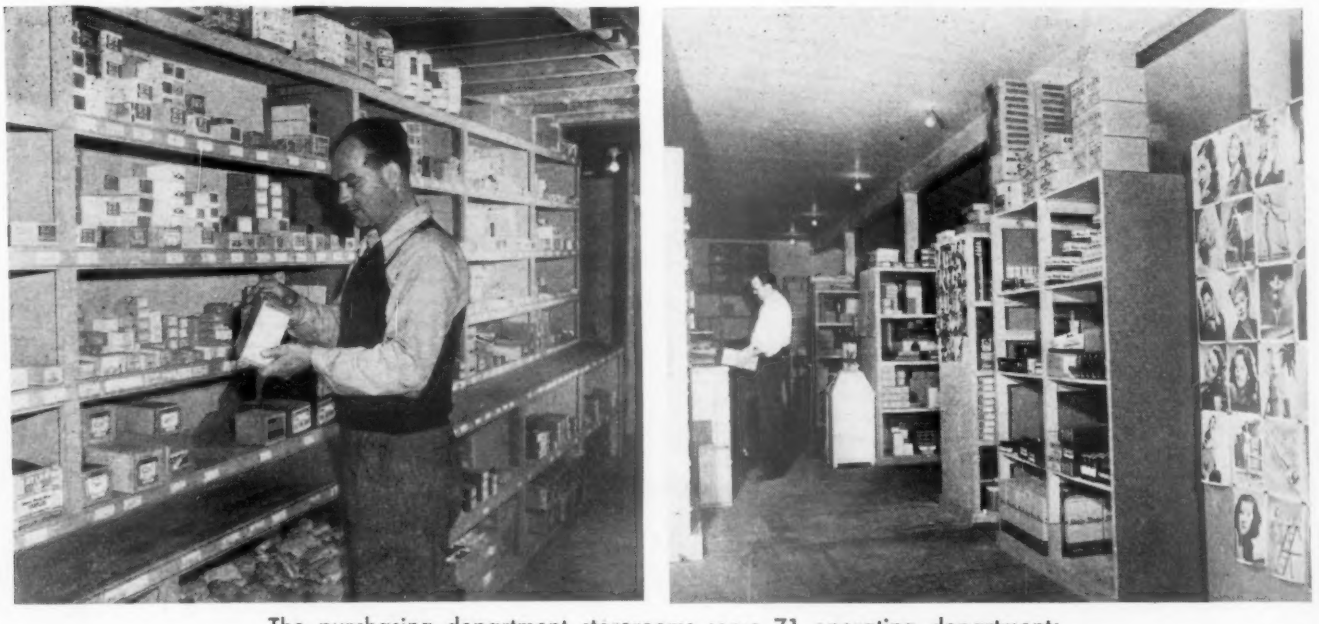
The fact that many such more or less unpredictable needs arise, requiring immediate and special procurement, does not imply general planning incompetency on the parts of producers, directors, and their staffs. If this were true, there would be dozens of such instances where there is now one. It is just the nature of a business in which every unit of the end product is totally different from all others; where every phase and method of "manufacture" of a picture is specially planned, individually equipped, and separately carried out. At the same time there is the ever-present likelihood of imperative last-minute changes in plans. The director may determine that the story can better be told by making these alterations from the original set-up—changes, the need for which does not, and generally can not, become apparent until this last minute. And any delays in making them might cost large sums for every hour of their duration.

Here is a big corporation, spending many millions of dollars annually, paying out vast sums for a diversity of specialized talent, for materials and equipment, and for the operation of a busy bee-hive of 71 departments, occupying over 300 acres on the main lot alone. Yet with all of this continued activity, the corporation has nothing tangible to sell, as the end products are images and sound tracks impressed or printed on film that is leased for use. The revenues derived therefrom are dependent on a high standard or quality of "manufacture" and on a proper gauging of what will best attract the interest of the general public at the time of issue.

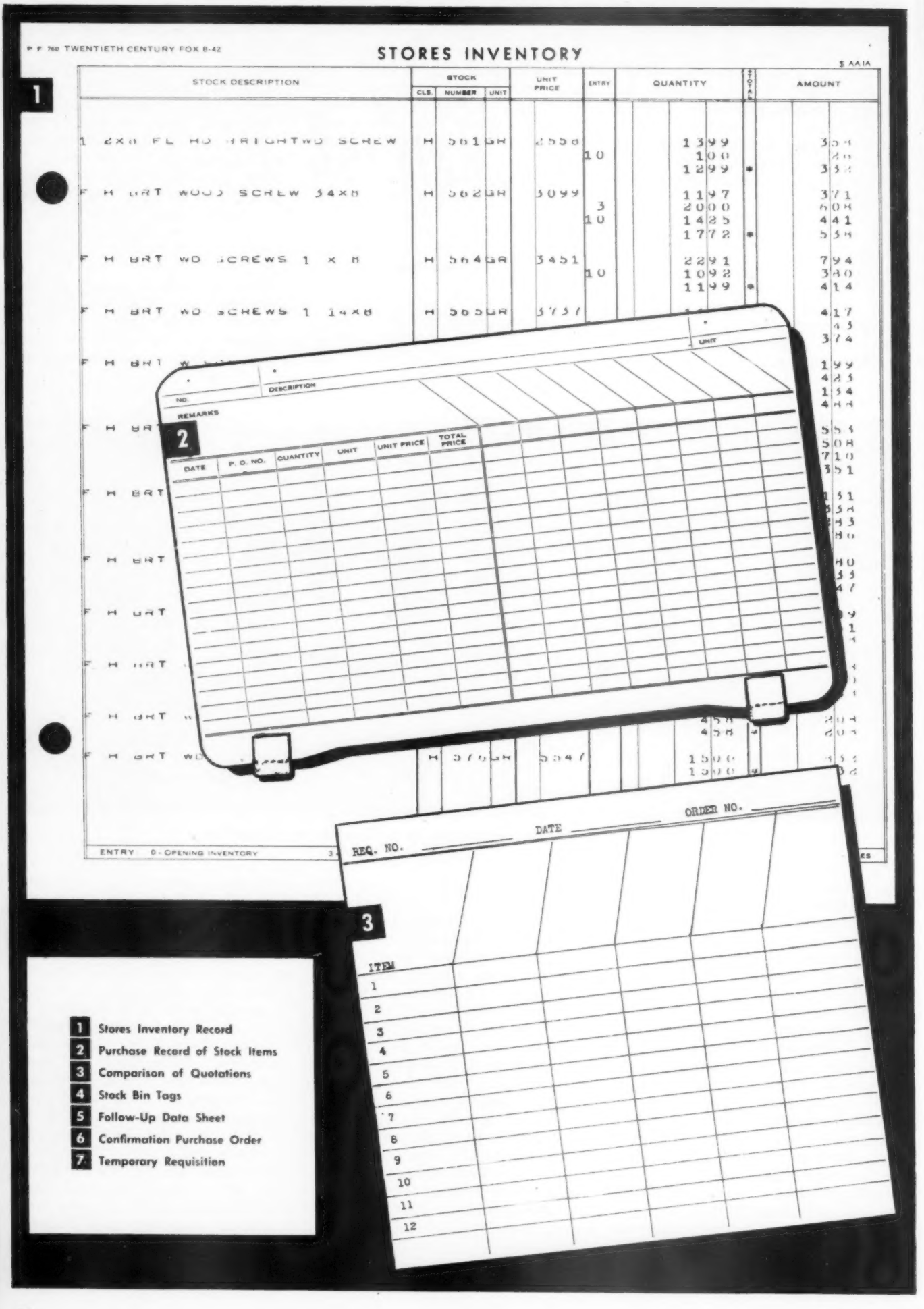
The purchasing department supplies all of these departments as they make their needs known, from little items such as stationery, on up to a great diversity and quantity of products. For example, the large, fully equipped woodworking mill is a large user of supplies such as lumber, plywood, masonite and many other materials. One job recently under construction, observed by the writer, was a full-sized railroad passenger car, designed with much ingenuity and costing about $22,000. It was built in five sections for easy assembly and disassembly, for ease in transportation to the points of future use. Each section has side and top panels, easily removable, so that picture shots can be taken of any part of the interior, from any angle. Obviously this is a special job, from start to finish.

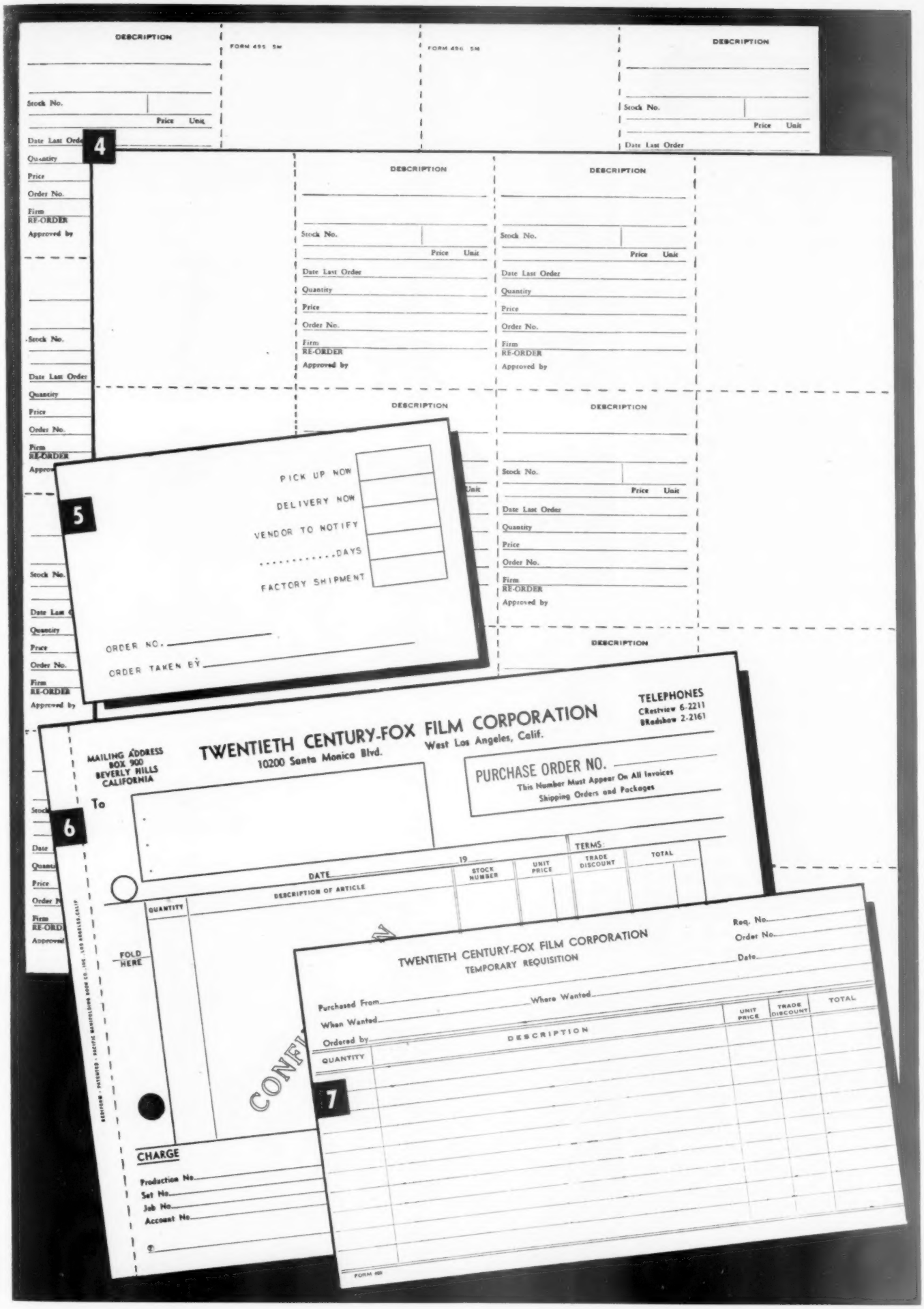
Metal working is done in a complete blacksmith shop and in three machine shops, two of them equipped for fine precision work. There are large paint shops, a set construction shop, a big carpet and canvas section, and many other divisions, which altogether encompass large and extremely diverse and flexible fabricating capacities. These activities are now housed in separate units, somewhat scattered, though not to the point of inefficiency or too much inconvenience. Complete plans are ready for a large shop center to include them all, along with stores and receiving departments which are under purchasing department control. This will be built as soon as the lifting of restrictions permits.

Purchases for 20th Century-Fox come within two main categories—MRO (Maintenance, Repair and Operating) supplies, and Production Materials, which supply the bulk of the requirements for specific use in making scheduled pictures.



The purchasing department storerooms serve 71 operating departments


P F 760 TWENTIETH CENTURY FOX 8-42
STORES INVENTORY
$ AAIA
STOCK DESCRIPTION
STOCK
CLS.
NUMBER
UNIT
UNIT PRICE
ENTRY
QUANTITY
TOTAL
AMOUNT
1
2
DESCRIPTION
NO.
REMARKS
UNIT
DATE
P. O. NO.
QUANTITY
UNIT
UNIT PRICE
TOTAL PRICE
3
REQ. NO.
DATE
ORDER NO.
ITEM
1
2
3
4
5
6
7
8
9
10
11
12
ENTRY 0 - OPENING INVENTORY
1 Stores Inventory Record
2 Purchase Record of Stock Items
3 Comparison of Quotations
4 Stock Bin Tags
5 Follow-Up Data Sheet
6 Confirmation Purchase Order
7 Temporary Requisition


DESCRIPTION
FORM 495 SM
FORM 496 SM
Stock No.
Price Unit
Date Last Order
Quantity
Price
Order No.
Firm
RE-ORDER
Approved by
4
PICK UP NOW
DELIVERY NOW
VENDOR TO NOTIFY
.....DAYS
FACTORY SHIPMENT
ORDER NO.
ORDER TAKEN BY
5
MAILING ADDRESS
BOX 900
BEVERLY HILLS
CALIFORNIA
TWENTIETH CENTURY-FOX FILM CORPORATION
10200 Santa Monica Blvd. West Los Angeles, Calif.
TELEPHONES
CRestview 6-2211
BRadshaw 2-2161
PURCHASE ORDER NO.
This Number Must Appear On All Invoices
Shipping Orders and Packages
To
DATE 19
TERMS
QUANTITY
DESCRIPTION OF ARTICLE
STOCK NUMBER
UNIT PRICE
TRADE DISCOUNT
TOTAL
FOLD HERE
CHARGE
Production No.
Set No.
Job No.
Account No.
6
TWENTIETH CENTURY-FOX FILM CORPORATION
TEMPORARY REQUISITION
Req. No.
Order No.
Date
Purchased From
Where Wanted
When Wanted
Ordered by
QUANTITY
DESCRIPTION
UNIT PRICE
TRADE DISCOUNT
TOTAL
7
FORM 498

some of the varied activities that must be kept supplied



Woodworking

Much of the purchasing system applies to both, but the greatest opportunity for close purchasing control is in connection with the MRO supplies. The rated items for MRO carry an AA-2 priority; for Production—AA-3.

The stores department contains nearly 7,000 different items of supply—principally building materials, dry goods, electrical, glass, hardware, lumber, and paint. Based on the experience of past use, the aim is to keep about a 90 days' supply of staple items in stock. A perpetual inventory is kept in the tabulating department, using an IBM card system and filed by code, class letters and stock numbers.

From the stores requisitions and purchase orders which are sent daily to the tabulating department, a new card is cut for each addition to, or withdrawal from, the stock. At the end of each month, these cards are run and tabulated on the Stores Inventory Sheets (Form 1). The last quantity entry after each item is the amount on hand at the beginning of the new month. A new card is made up at this time, carrying the amount and its value. This is also the first entry, or opening balance, under "Quantity" on the next tabulation. The total of all purchases or additions to stock is indicated by the code number "3", with "10" as the code number that shows the total of all withdrawals during the same monthly period.



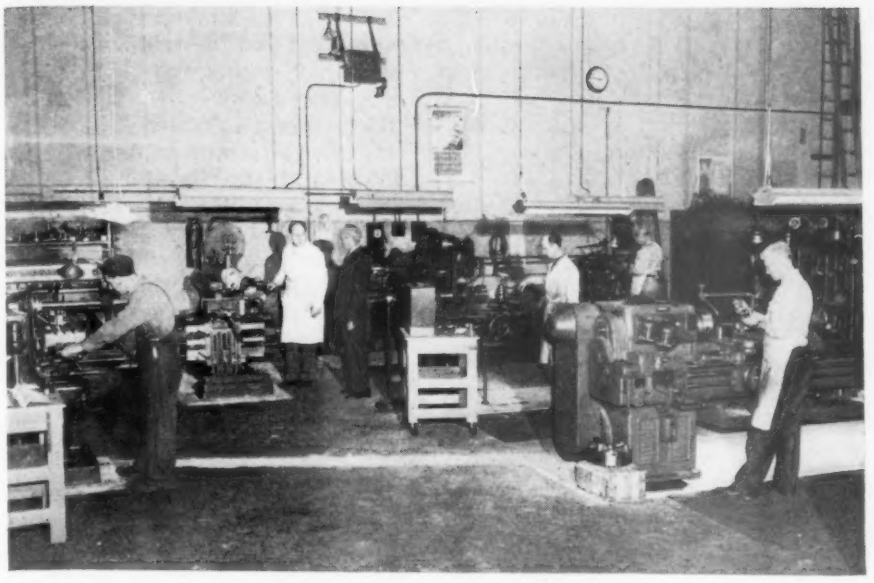
Set Construction

No attempt is made to keep the unit price absolutely accurate, in terms of the last purchase prices, as this would entail too much calculating, to too little purpose. The stock on hand might represent units bought at more than one price. Therefore the unit price used (including tax) is an average arrived at by dividing the previous month's closing balance of quantity into the closing balance of money value.

A Purchase Record of stock items is kept on Kardex cards (Form 2) which list all purchases with their actual unit prices, plus tax. These are filed by classes and stock numbers. Vendors' names are entered between the diagonal lines on the heading of this card, and a check mark placed in the appropriate column showing where the order was placed, opposite the entries of pur-



Scenic Art



Machine Shop



Plaster Shop



Canvas Shop

chase order number, quantity, unit price and total cost. A similar arrangement is used on Form 3, which is used to list competitive quotations whenever a requisition is received where a choice of vendors is indicated for reasons of price, delivery, or other factors. A check mark is placed on the column of the vendor to whom the order is awarded, and these sheets are finally filed with the purchasing department's alphabetical copy of the purchase order.

Stockroom Controls

A bin tag system is used to identify stock, for convenience in reordering, and also to indicate items that have been reordered, pending delivery to the stores department. These tags are printed on a sheet containing eight sets of tags in duplicate (Form 4). In the center half of one side are two rows of four forms each, on which the entries are typed in black. On the reverse side, along the outer edges of the sheet, quarter width, are the duplicate copies, which are folded under for typing, using a red carbon for the duplicate. This has greatly speeded up the typing of the forms, as compared with the original method of filling in one at a time. The individual tags, with duplicate copy, are then detached along perforated lines. The system was put into use, along with other parts of the stores system, by P. L. Montemurro, who held the position of storekeeper until he was promoted to become Second Assistant Purchasing Agent.

These self-explanatory forms are placed in metal holders on the front of each bin or tacked up adjacent to the stock. When a replenishment of the item is required, the black copy is torn off at the perforation, the approval for reorder is noted thereon, and it is sent to the purchasing department along with the requisition. The red copy remaining on the bin shows that the replenishment has been ordered. When the material arrives, a complete new tag is made out and the old red copy discarded. The black copy, carrying the date of the previous order, quantity, vendor and price, is a helpful guide to the purchasing department.

Advices as to requirements to be met come to the purchasing department on a Requisition Form that is really the working sheet for processing the transaction. Each person or department authorized to issue them, has a pad of requisitions in triplicate. The original (white)

and duplicate (yellow) copies are detached and sent to purchasing, with proper approvals by the department heads and higher executives as required; the triplicate (tissue) copy remains in the book as a record.

Mr. Barrows codes the requisition with red pencil, as to whether they are MRO or Production purchases, the priority rating (if any), and the inventory replacement percentage (if any). The requisition is then approved and signed by Mr. Kelly, and the white copy is assigned to the buyer who normally does the purchasing for that particular category of procurement. All buying is done by Mr. Kelly, Mr. Barrows, Mr. Montemurro, and Miss Laurine Allen. There is no strict division of purchasing responsibility. Any one of the four may have to take over some type of procurement ordinarily handled by one of the others. This makes it necessary that each of them have the broad purchasing knowledge needed to provide for nearly any of the company's requirements.

Issuing the Order

At the same time, the yellow copy is sent to the receiving department, for use as an internal delivery receipt. Checking and receipt of deliveries is done either at the receiving department itself or at the ultimate destination where the vendor has been instructed to make delivery. This saves rehandling and delay in the case of truck deliveries of sand, cement and other heavy bulk deliveries. After checking, the receiving clerk retains a copy of the vendor's delivery ticket, and the yellow copy of the requisition is signed by the person who finally receives the goods, as an internal delivery receipt, filed numerically in the purchasing department files.

The system of issuing purchase orders in this organization is in sharp contrast to ordinary industrial procedure, in that the purchase order form itself, for the majority of transactions, is not made out until the transaction is actually completed, so that it serves primarily as a confirmation to the vendor and as an internal record.

Here is the way it works. Using the white copy of the requisition as a working sheet, the buyer goes to work on the placement of the order. Most of the orders are placed by telephone. When the commitment has thus been made, the vendor, quantity, price, and extension entries are made on the requisition. From this information, the priority control cards are posted, and a small form containing delivery and follow-up data (Form 5) is made out for each order. Then the following forms are clipped together and placed in an alphabetical file (by vendor's names) of unfilled orders:

Requisition, completely filled out
Follow-up slip (Form 5)
Complete set (six copies) of purchase order, numbered but not filled in.

There are usually from 200 to 300 such unfilled orders in the open file at any given time. Each set is identified by a colored marker indicating the time of expected delivery. There are six colors in this series, corresponding to the days of the week; no distinction is made as to whether it refers to the current week or some subsequent week. Every day the follow-up man refers to those whose color indicates that delivery is due on that day. For instance, on Tuesday, he picks out all those with the yellow signal. The follow-up slip gives him the necessary information in regard to delivery promises. He checks daily with the receiving department, which has the yellow copy of the requisition, to see what orders have been received. If goods are past due, and some expediting action is indicated, he secures a report and a new promise from the vendor, making the proper change in color signals so that it will again come up for attention in due course.

Checking Receipts

When goods have been received and the delivery checked in, the order is pulled from the file and a typist fills them in from the complete delivery information then available, so that the order corresponds exactly with what has been received rather than with original requisition of phone order, if there should be any discrepancy between the two, as, for example, a slight variation in quantity. This eliminates the necessity of changing records, particularly in the accounting department. When the accounting department receives purchase information under this system, they can proceed directly with the making of final entries and payments.

Mr. Kelly signs the order, and the original (blue) confirmation copy is sent to the vendor. The second (pink) and third (yellow) copies are routed to accounting, with the original white requisition attached. The requisition shows the authority on which the order was issued, payment is made from the pink copy, and the yellow copy goes into the accounting department files. The orange copy (made with a short carbon to eliminate cost information) is sent to the receiving department for signature to show that "Above material was received in good condition" and is routed from there, with vendor's delivery ticket attached, to the accounting department, which now has all data on the completed transaction. The other two copies (white and brown) are placed respectively in the numerical and alphabetical order files of the purchasing department.

Partial Deliveries

If partial deliveries are made, and balance is promised before the expiration of the discount period, the order is not filled out until deliveries are completed, so that it can be made out for the full quantity as one transaction. If the promise is not fulfilled in time to take advantage of the discount, the order is filled out and sent to accounting with the original requisition. In that case, a facsimile requisition is made up for the balance, carrying the same order number, and if necessary this procedure is repeated until the full quantity has been received. The subsequent partial purchase orders carry the original order number plus a suffix: -1, -2, -3, etc., however many are needed. As the original purchase order has already been filed numerically in the accounting department, it is a simple matter to collate all purchase orders applying to the same transaction, and to check total quantities received against what was originally requisitioned and approved.

In the case of certain factory orders and those carrying priorities which must be passed along to the vendor to assure delivery, there is a slight variation from this procedure. The blue order copy alone is filled out and mailed to the vendor. The rest of the forms are handled as above, except that a special red marker is clipped to the top, and they are kept in a separate file adjacent to the regular file of open orders.

It will be noted that the requisition is the important control document in this system, and it is necessary to have a requisition as the authorization and check against every purchase commitment. To provide the desirable flexibility for meeting contingencies, as in the case of an urgent demand for some supply without the time to put through

a regular requisition in order to get the purchase under way, proper authorization is given to the purchasing department by phone, and a temporary requisition (Form 7) is made out by the buyer. This is in duplicate, with the second copy going to the receiving department as in the ordinary routine. The name of the authorizing official is inserted in the space marked "Ordered by", and is initialed by the proxy signer. This is locally known as a "jawbone requisition". In such instances, a regular requisition follows through, to be matched up later with the "jawbone."

There is a third type of requisition, used for obtaining supplies from the various storerooms, coming under the supervision of the stores section of the purchasing department. Stores requisitions are not prenumbered, and are made out in single copy form. After they have been honored by issuing the desired items, they are numbered for reference and filing purposes and sent to the tabulating department. Here they are processed for accounting distribution and to guide the entries on the withdrawal record in connection with the perpetual inventory system. When this has been done, they are returned to a permanent file in the main storeroom.

Inventory and Salvage

Besides the personnel already mentioned, Mrs. Nellie Clark is in charge of the priority control cards, handles all incoming calls as receptionist for the department, and does a variety of liaison work. There is a girl assistant to the expediter, and two typists and file clerks. In connection with stores and receiving, there are three lumber checkers, two handling new lumber, and one in the salvage yard. It is the company policy to buy first quality lumber, as it can be salvaged for use many times over. This is an important consideration, as proved by the fact that about 200M board feet are salvaged each month.

A complete inventory count of all stores is made once a year, on three week ends starting the middle of November. Spot checks are made monthly, at the main and outlying storerooms, on the date of the monthly inventory tab runs.

Mr. Kelly keeps a very interesting notebook of entries relating to unusual purchase requests and their possible sources of supply. As indi-

(*Continued on page* 307)



The special effects department includes a very complete arsenal



The model and miniature department presents a variety of special requirements

Report on Conservation

Annual meeting of government conservators reveals substantial savings in materials and money through alert control program

THE second annual meeting of the conservators of the Executive Branch of the Government, held in Departmental Auditorium on April 25th, with Clifton E. Mack Director of Procurement, Treasury Department, as chairman was an unusually interesting meeting because it demonstrated that governmental officials are deeply concerned anent the tremendous problem of conservation of materials, manpower, and executives' time, along with the money savings made possible by diligent conservation efforts.

By and large the reports submitted by representatives of the District of Columbia, and the Post Office, War, Navy, Agriculture, Civil Service departments, and the Department of Commerce, Procurement Division, Office of Inter-American Affairs, the Foreign Economic Administration and others, according to Chairman Mack, indicated that the conservators had done an excellent job, and he declared that the reports had proved commendable. "Looking forward," he said, "the thought has been brought forward that conservation is not a temporary expedient because of the war. Conservation is good management and good business."

As a matter of fact, because of the good results being obtained and the importance of conservation, the conservators voted to hold meetings every ninety days rather than annually, because it was felt that they served as a very practical experience exchange that all departments and agencies could profit by. New methods of conservation and salvage are constantly being developed by various of the conservators, and it was felt that the new developments should be made available to all at the earliest practical time.

Forms Study Inaugurated

Major F. X. A. Eble, Special Assistant to the Director of Procurement, who among other duties is in charge of forms analysis and forms control activities in the Procurement Division, announced that a special committee headed by Arthur B. Thatcher of the Deparmment of Agriculture, will make a special study of the forms situation looking to the postwar era and working closely with the Bureau of the Budget which is taking a very active part in forms analysis. Major Eble referred to the forms being used in the Government as the tools of administration and "correspondingly as important as the tools in the factory." Many, he said, are poorly designed, oversized, or inefficiently prepared.

With one or two exceptions, the reports in general reviewed results of conservation effort in office supplies and equipment, forms, furniture, and wire services. Readers interested in having more detailed information about the broad scope of the Conservation program of the District of Columbia, and preliminary activities of the Procurement Division, are referred to the report in the November 1943 issue of PURCHASING Magazine entitled "Pattern for Conservation."

2800 Paper Items

A feature of the meeting was an address by the Honorable Lyle H. Boren, chairman of the Boren-Halleck Committee on newsprint and pulp. Congressman Boren (Okla.) spoke on the subject "Fighting a War With Paper," his talk being broadcast over radio station WINX. The maximum time alotted to the rest of the speakers was three minutes each.

Congressman Boren stressed the critical paper situation, stating that there is no more generally used product throughout the military effort than paper which "in its importance ranks along side of powder and steel."

He said that there are 2800 items of procurement which the army and navy buy for military use which are strictly paper products, and that almost all of the several hundred thousand items of procurement for military purposes are wrapped or packaged in paper.

Emphasizing the importance of paper to the war effort he said that it took 175 tons of blueprint paper for the complete plans for the battleship U.S.S. Missouri. "Paper has not only gone to war with the soldier himself," declared Congressman Boren," and with his supplies and implements of war, but it has played a vital role in war production, particularly in coordinating the facilities for production, in making managerial control possible and providing graphic aids to such control, and when coupled with printing, as an informative aid in helping the worker to understand his tools and management to utilize its facilities.

"In its importance in our national economy I know of no product that plays a more general and vital role than paper," he declared. "Compare it with oil, compare it with coal, compare it with wheat, compare it with almost any product, and I think you will find that you can more readily think of some satisfactory substitute for almost any of these products than you can for the multitudinous uses of paper.

"Particularly now as the increasing weight of military effort is brought to bear on the Pacific area, the desperate need for paper for more secure packaging increases. We must not forget that paper is a vital strategic material of war."

Results of Conservation

Roland Brennan, Director of Procurement, and Conservator, District of Columbia, reported that the District is keeping within its mandatory allotment this year of 75 per cent of the paper consumed in 1942 so far as paper used for printing and duplicating is concerned. He also reported that the District spent $94,000 less last year than during the previous year for fuel, tires and tubes and automotive supplies.



"The reports of the conservators are very commendable" — Clifton E. Mack

"I cannot stress too strongly the increasing importance of preventive maintenance and conservation of equipment and supplies until new goods and machinery are again available for civilian uses," he said. "Since savings of public funds without serious embarrassment to public service functions have been realized during wartime, no reason is known why the gain made by conservation and careful maintenance and operation cannot be carried over into peacetime. Purchasing Agents have a strategic place in every organization to expound the wisdom and merits of conservation. Controls to prevent waste should never be relaxed."

Mr. Brennan stated that District departments are required by the property accountability regulations to report property they would like to have surveyed or condemned. "They do so," he said, "but on the other hand there is other property which, although not used, is kept indefinitely for that repair job which may or may not occur. This is sound business, of course, but it is still idle inventory, nevertheless." Mr. Brennan recommended that a careful check be made on idle property, such as machinery and equipment, looking to the transfer and use of such equipment by departments needing it.

Cooperation by W.P.B.

C. Sterry Long, conservator, War Production Board, reported that the WPB during the past year has realized a sharp shrinkage of personnel in Washington, which in addition to relinquishing 200,000 feet of floor space, released 8,752 pieces of furniture and 1,047 office machines. Some 5,000,000 obsolete forms were salvaged, many of them being reprinted on the reverse side for further use. Also, more than 100,000 file folders were salvaged and later reused.

He stated that some 5,000 to more than 16,000 telegrams per week are despatched by the board, and these are screened carefully from the standpoint of service, that is, changing regular message to day letter, night letter, etc. All unnecessary words are deleted, the latter being particularly important in chain messages which run as high as four to five thousand in a nationwide distribution. In one case, this screening saved $600 on the sending of one message. "We estimate on the basis of a liberal sampling that this screening operation has resulted in monetary savings to the Government of some $275,000 during the past year," he said. Other savings include manpower and conservation of facilities.

Navy Standards

The Hon. Lucille Foster McMillin of the Civil Service Commission stated that the Commission "has cooperated, is cooperating and will continue to cooperate with the paper conservation and salvage program. We have requested every single employee to reduce to a minimum the use of paper in the office and at home and in the community as far as possible. Files and paper that have become no longer necessary are being salvaged and added to the waste paper program."

Walter R. Jacobson, Navy Department Conservator restricted his report to the activities of the Standards Section of the Supply & Equipment Division. He said that there are 16 bureaus in the department comprising 45,000 military and civilian personnel. Requisitions for office supplies machines, furniture and paper, whether the material is to be furnished from warehouse stock or is to be purchased, are screened by the standards section as to whether there is an actual need, whether the request is reasonable as to quantity and quality, whether it is best suited to the needs of the activity, or restricted by existing directives, and then decision is made as to whether the material is to be furnished from warehouse stock, substituted with similar item, purchased, or the requisition disapproved. He said that the value of material requisitioned and cancelled totalled $82,000 during this fiscal year, and that the spending of $479,000 of new money for this fiscal year was prevented by substitutions. One of the large salvage items is scrap paper, 433,000 pounds having been salvaged by the Warehouse section only, since the first of last July.

He concluded with the statement that "The results of this planned program have proved most profitable to the Navy Department and to the Government in preventing the spending of new money, in using material surplus to the needs of other Government Departments, and in preventing the use of manpower and material for new equipment."

Large Savings Reported

Malcolm Kerlin, Conservator, Department of Commerce, reported that notable savings had been made in paper. He said, "By using scrap instead of new stock, a saving of 33 tons of paper was made last year. By insisting on single spacing we save one and a half million letter-size sheets of paper per month. We have cut mailing lists 45%. Through consolidated mailings we have saved 40% on envelopes, and last year 680,000 were salvaged by overprinting. We have eliminated practically all heavy covers. But our greatest saving is that we strive to print only what is needed, what our public de-

(*Continued on page 308*)



"Paper is a vital material of war" — Hon. Lyle H. Boren



"Printed forms are the tools of administration" — Major F. X. A. Eble



"Inactive files are a source of salvage" — Hon. Lucille Foster McMillin

"POP" Holds The Fort



By CHARLES FORD

WHEN old J. B. Ackroyd hired Pop Anderson, he was just Jimmy Anderson, a pleasant looking kid from a fresh-water college, with not much to recommend him except a sound Yankee ancestry and an ingratiating smile. Old J. B. did his level damnedest to erase that smile from Jimmy's mug, but he couldn't do it. Jimmy smiled his way into the job.

It wasn't much of a job, but there wasn't much of Jimmy. J. B., however, did not fail to note that, when the lad's rather heavy-lidded eyes opened, they were of a deep hazel with a hint of power in them.

Haphazard Buying

As time passed, the old man noticed that the kid kept reaching out. He was always willing to help somebody else out, and in doing so he learned things. Occasionally they would send him into the city to pick up small items nobody else would bother with, and Jimmy always brought back the goods; he also frequently brought back some idea he had picked up on the way. He tried to sell some of these ideas to the old man, and got away with enough of them to keep him at it.

Ackroyd's purchasing department in those days consisted of J. B. Ackroyd and anybody else he told to get something. The net result was that nobody knew what orders were out, what were partially filled or not filled at all, or what the price would be when the bill came in. J. B. was struggling about that time and his credit wasn't too hot, but the old man could generally hornswoggle somebody into filling his orders.

Jimmy came back from one of his city errands one day with some notions he had picked up about a purchasing department; he said nothing to nobody, but he began to gather in and arrange such information as he could about the haphazardly ordered stuff, and it wasn't long before people found it the easiest way to ask Jimmy. And it wasn't too long before old J. B. smelled what was going on, and he summoned Jimmy to the private office.

"Look here, young fellow, who told you to mix into this ordering business, anyhow? I'm damn' sure I didn't."

Jimmy uncorked that smile he kept for such occasions and quietly but firmly told the old man that, as long as nobody else was looking after that end of the business, it seemed a good thing to have such information rounded up in one place, and he had found time to do it, and did. So what?

J. B. blustered and fumed, but he didn't tell Jimmy to keep his fingers out, so Jimmy kept on. The people around the factory caught on; they asked Jimmy. Jimmy obliged; and when the superintendent or somebody else in authority found that the lad would get things for them and save them the trouble, it wasn't too long before the Ackroyd outfit had a pretty fair, though unofficial imitation of an honest-to-goodness purchasing department.

An Appointment

Then the old man got ideas. He called in the sales manager, the super, the accounting man, and a few others—including Jimmy Anderson—and shot his wad.

"Listen, you birds, I don't know why the hell we never thought of it, but every other plant in this God-forsaken village has something it calls a purchasing department. The guy that runs the purchasing department buys everything in the place from road-rollers down to rat poison; and here we are, with everybody including me, buying all sorts of stuff and half the time not making any record of it. When the end of the month comes I haven't any idea of how much will have to be paid out, except that it's always a damn' sight more than it ought to be.

"Now here's this kid, Jimmy Anderson, who has the unmitigated gall to rate us as a bunch of back num-

bers, and has gone ahead on his own hook and pulled together most of the essentials of a purchasing department without saying a dodgasted word to me or anybody else. Now he's pulling my leg for a raise and, by Godfrey, I think he rates a good one. He's not only going to get the raise, but he's going to have a handle; from now on he is Purchasing Agent of the J. B. Ackroyd Company—and may the Lord have mercy on his soul. Every doggone thing this company buys is to go through his hands; there's to be no more ordering of anything except through his department. You send your requisition to the purchasing department; Jimmy will take care of them, or if he don't he'll settle with me. Now get the hell out of here, all of you, and remember this is an order."

Into The Groove

Well, Jimmy's purchasing department prospered. It delivered the goods, and became a distinct asset to the business. He had his troubles and made his mistakes, but he never covered up, and J. B. always knew where he stood. So, with raise after raise as the business went along up, Mr. James Anderson was sitting very pretty. Then he met a girl—*the* girl—sold himself to her one hundred percent, and they were married. They had a marvelous time fixing up a pleasant little suburban bungalow Jimmy had bought; and J. B. staked them to a month's vacation in Alaska.

For a couple of years Jimmy's smile was more in evidence than ever. Then, one morning the news filtered about the plant that Jimmy's wife had died, and the little son that cost her life went with her. When Jimmy came back to the office he had sold the bungalow, got rid of all the furniture except a few pieces to furnish a small apartment; and his smile wasn't so much in evidence. He said nothing, went on his job, and his loss was never referred to in his presence. He gradually settled down, grew a little stockier, lost some hair from the top of his head in the place where the hair ought to grow, and, as time went on, he became Pop Anderson.

He also became about the best-known and most highly respected Purchasing Agent in his line of business. There was nothing about the Ackroyd plant he didn't know; and often he sensed their needs before they themselves realized them. When they wanted something new, Pop usually pulled it out of a drawer of his file and laid it before them. He had bullied and cajoled old J. B. into leaving the hiring and firing, and the salaries of the purchasing department to him. So he had a sound and loyal organization, and an assistant who knew everything he knew and drew down damned near as much moolah as his boss. When Pop took a notion to slam down his desk and disappear for a few days, nothing was interrupted.

Time passed. Old J. B. became chairman of the board, and young J. B. became president. Pop had settled down in his solitary life, playing golf every Thursday afternoon and poker every Saturday night. Outside the Ackroyd plant Pop had his cronies at poker and golf, and he got the first-night habit at the theaters. But his main thought was in the business and time meant little to him if there was a problem to be solved. But he was getting along. He was more than a little bald, and somewhat pudgy, and sometimes there were cigar ashes on his vest; nevertheless, as far as business was concerned, he was the same Jimmy Anderson who, in the days when Ackroyd's took six months on their bills, made the suppliers stand for it and like it without jacking up their prices to pay for it. He was a director of the company, but didn't take it too seriously; he lived his directing every day.

New Blood

Old J. B. finally went to his reward, about which some people said one thing and some another. Jimmy said nothing. Young J. B. had a bad case of "captain-of-industry" complex, capable though he was. Only he had the weakness for young blood in the place that often goes with that complex. And he never quite sympathized with the casual way in which Pop Anderson carried on his purchasing. Young J. B. thought the way to buy big jags of stuff was to send out carbon copies of a letter to everybody on earth, asking bids; and give the order to the lowest man and be damned to the rest. Pop didn't operate that way; but the stuff was always there when wanted, the inventory was never unduly large unless there was a real gamble involved. Everybody wanted to sell Ackroyd's, and Pop knew what was what when it came to prices.

Then, all of a summer's day young J. B. summoned Pop to the carpet. With what he considered fine tact and diplomacy, he intimated that it was about time Pop was turned out to pasture, to make room for one of the rising generation who was better posted on the proper use of carbon paper. Pop listened without a word, calmly smoking one of the Buster Brown cigars he affected.

No Time to Retire

When young J. B.'s fountain of tact and diplomacy ran out of juice, Pop took one more nonchalant whiff, chucked the butt into the ash receiver and remarked:

"Very nice, J. B. You are quite right in every particular except that the purchasing department doesn't need any new blood, and your Purchasing Agent is a long way from the boneyard. You've got a purchasing department that functions, and you know it; just for fun, check with some of your competitors—I've turned down offers from every one of them. If by accident I were to drop out today Dick Roberts would carry on; and there isn't a damned thing I can do that Dick won't do as well. Backing up Dick is a string of younger men standing in line for the job when Dick finishes. Dick and I understand each other; he draws down damn near as much money as I do, and he's worth every cent of it. He's satisfied with the situation. When I quit he expects the job and he's going to get it.

"But I'm not going to quit, not for a while anyhow. Until further notice I'm heading Ackroyd's purchasing. I know I'm getting bald, and fat, and lazy; and my old ticker beats about once every five minutes; but you ought to know, better than anyone else, that when Ackroyd's needs something, I get it for them. It will be the same when I drop out if you don't mess things up. This purchasing department is organized. I don't hold out on the boys; the smallest of them has a chance to learn everything I know or learn, and there are a couple of kids in the line-up that will be officers and directors of this company before they're many years older. You know that for years, when you have needed a particularly good man for a special job, you've come to me to draft one of my men, and every man I've let you have has made good. You've got them spattered all over the place. That's because I pick 'em and train 'em, and you know they have to be good.

"Your father hired me when I was a green kid, because he thought I had something on the ball. He put

(*Continued on page* 316)

Training For Contract Termination

HOW to prepare for fast and final settlement of termination claims, paving the way for speedy reconversion of plant facilities, is the theme of a new training program offered free of charge to war contractors throughout the country. In four-hour work sessions, limited to sixty contractor-students per group, industrial representatives "learn by doing." Given a hypothetical contract cancellation case, they are taken through the necessary procedures step by step under the supervision of well trained termination specialists from the participating services, filling out specimen inventory lists and settlement proposal forms, which are then discussed and corrected. These photographs were taken at a typical session of the New York Termination Coordination Committee, one of twenty-one such committees carrying on similar programs in key regions throughout the country.



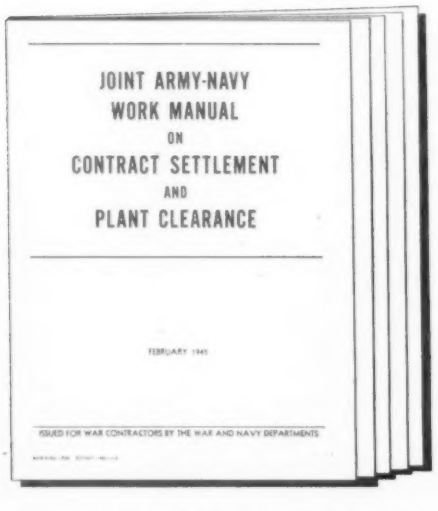
1. Invitations are mailed to a selected list of contractors, from the Committee's office in the Chase National Bank Building, 60 Cedar Street, New York City.



2. Here is Mr. Walter F. Titus, Vice President in charge of Terminations for the Sperry Gyroscope Company, registering on arrival for the course.



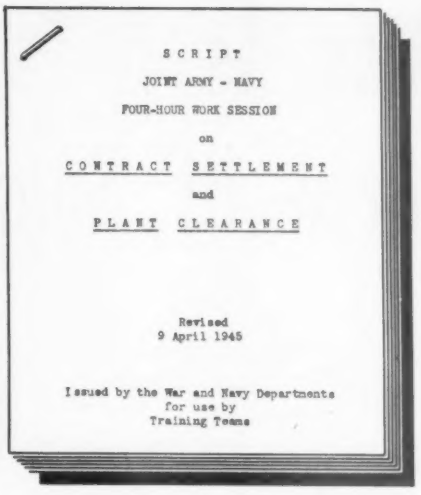
3. Members of the "Instruction Team" include representatives of the Quartermaster Corps, Navy Office of Procurement and Materiel, Signal Corps, and Army Air Forces.



4. The basic "text book" is the Joint Army-Navy Work Manual on Contract Settlement and Plant Clearance, which includes regulations governing all phases of procedure.



Navy Lt. Don E. Hathaway opens the session by presenting the problem in his role as contracting officer. Mr. Titus is seated in the front row.



SCRIPT

JOINT ARMY - NAVY

FOUR-HOUR WORK SESSION

on

CONTRACT SETTLEMENT

and

PLANT CLEARANCE

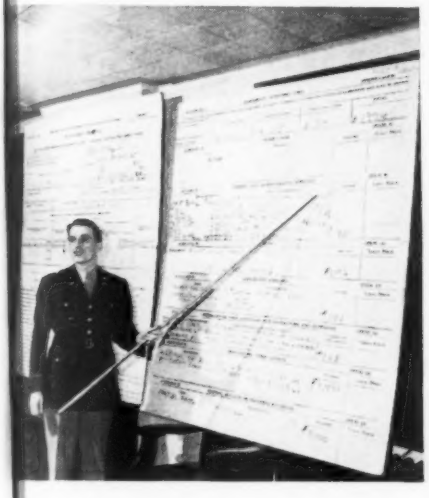
Revised
9 April 1945

Issued by the War and Navy Departments
for use by
Training Teams

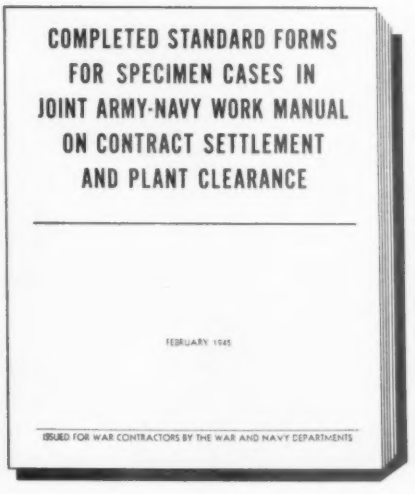
6. The training session follows a carefully prepared script of fifty mimeographed pages, explaining the step by step procedure and giving detailed instructions.



7. Lt. G. W. Lee, Signal Corps, takes over for a discussion of accounting methods and records required to substantiate the settlement claim.



Lt. E. N. Hoekenga, AAF auditor, explains how a settlement proposal should be prepared, using a large blow-up of the actual form.



COMPLETED STANDARD FORMS
FOR SPECIMEN CASES IN
JOINT ARMY-NAVY WORK MANUAL
ON CONTRACT SETTLEMENT
AND PLANT CLEARANCE

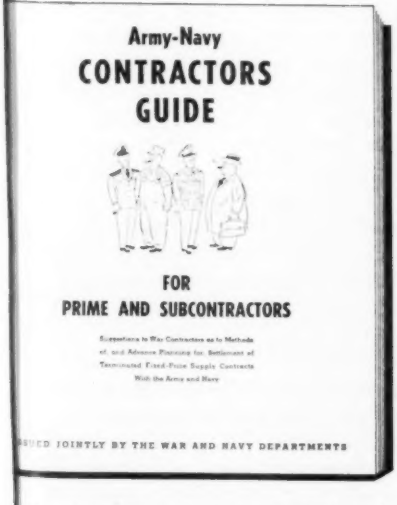
FEBRUARY 1945

ISSUED FOR WAR CONTRACTORS BY THE WAR AND NAVY DEPARTMENTS

9. At the end of the session, trainees are furnished with a pamphlet containing the completed standard forms for specimen cases covered in the work manual.



10. Following the formal presentation, there is an open panel discussion in which individual questions are cleared up.



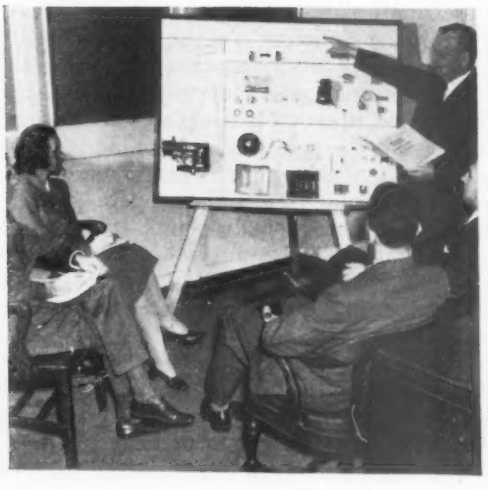
Army-Navy
CONTRACTORS
GUIDE

FOR
PRIME AND SUBCONTRACTORS

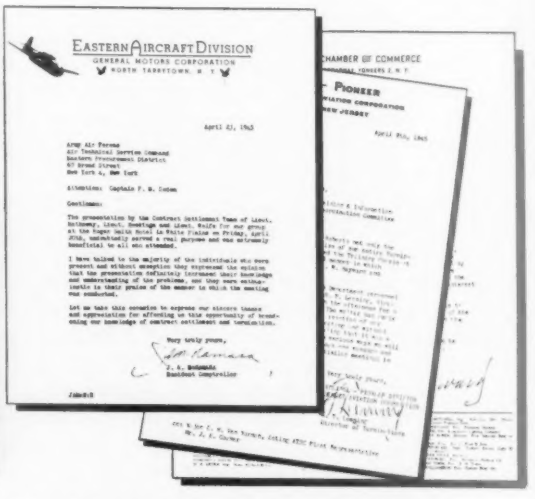
Suggestions to War Contractors as to Methods of, and Advance Planning for, Settlement of Terminated Fixed-Price Supply Contracts With the Army and Navy

ISSUED JOINTLY BY THE WAR AND NAVY DEPARTMENTS

The Army-Navy Contractors' Guide takes on new meaning and clarity after the training session has demonstrated the application of its principles and rules.



12. Back in his own office, Mr. Titus instructs the Sperry staff on property disposal as it affects the company's war contract products.



EASTERN AIRCRAFT DIVISION
GENERAL MOTORS CORPORATION
NORTH TARRYTOWN, N. Y.

13. Enthusiastic letters of appreciation attest to the value of these training sessions, which to date have reached more than 16,000 people, representing 10,000 contractors.

Small Business As A Postwar Source Of Supply

By SENATOR JAMES E. MURRAY
of Montana
Chairman, Senate Small Business Committee

Wartime production records have earned for Small Business a place in the sun



SMALL Business has played an extremely important part in wartime production in the United States —and it is prepared to participate on a large scale in the reconversion program and subsequent production and marketing of peacetime goods.

Chances are that small business will continue during the transition period, and the period of peace which is to follow, to be a major source of supply for both big and small firms. However, there are some problems which little business faces and must overcome before its future can be assured. Adequate financing must be provided to continue the operation of many small firms. High calibre management must be available together with materials and productive facilities as quickly as possible in order to prevent the collapse of many small firms whose funds are tied up as a result of contract terminations. Positive aid and assistance will have to be furnished to re-establish many small firms which have been forced to suspend operations during the war years. This will be particularly true of certain distributive firms.

These problems can, however, be met and consequently, small firms are now in position to assume a more important role than ever before as suppliers of all types of consumers—both industrial and individual.

Record of Subcontracting

Wartime subcontracting has proved that there are very few items smaller firms are unable to make on the same quality-and-cost-level with the larger firms. Large firms, such as International Harvester and American Locomotive, were quick to realize during wartime that small producers are able to lend themselves readily to the manufacture of cost subassemblies and parts. When American Locomotive contracted to make tanks for the United Nations armies in North Africa, is was necessary to call upon the assistance of thousands of truly small machinists.

When it was finally proved that these small plants had actually made possible the completion of the herculean task of producing the tanks which International Harvester had been called upon to make, the company issued a public statement acknowledging the high quality of workmanship and splendid cooperation which these small plants had demonstrated. All groups were listed, each receiving its full share of praise for its participation in the program.

It has been proved that this type of cooperation is possible between large and small firms during wartime. There is nothing to prevent a similar degree of cooperation during peacetime, provided small business receives a reasonable degree of help from (1) other small business, (2) big business, and (3) government.

As a result of the high degree of efficiency demonstrated by small firms as wartime suppliers, three major automotive companies have recently expressed the belief that they will come to rely on such small producers more and more after the war. They estimate that they will rely on small firms for 50% of the sub assemblies and parts used in making post-war motor cars—and add that this 50% figure is conservative. Studebaker Motor Co. estimates it will be supplied by three or four hundred small producers of components, subassemblies, and parts.

Reliable Suppliers

The skills of small producers are particularly adaptable to manufacture of electric motors, dynamos and similar equipment. The small unit producing items such as these has now a greater chance for success than at any time prior to the war because of the heavy load which such





such plants have carried in making essential items for our fighting equipment. Large firms—in some instances even foreign purchasers—will be less likely to consider dealing with small producers a "leap in the dark." Small manufacturers have turned out products of high precision and quality—in some instances even better than those same items which are being made by big business.

Wartime dealings of government and business with small firms has done much to allay the fears which these factors formerly had that their specifications and delivery dates would not be met by small producing units.

At the present time, government is attempting to carry the marketing possibilities for small firms even further than wartime conditions have permitted these units to do for themselves. Some thought is being given to standardization of products which would be helpful for small firms both in the domestic markets and in foreign trade. At the same time it is not expected that any such standardization would prevent small firms from accepting orders for products to be built to a set of individual specifications. It is believed by some competent production executives that such a move on the part of government, or even on the part of some organization of small business firms might tend to expand the over-all marketing possibilities which smaller businesses throughout the country have at the present time.

Directory of Facilities

Steps designed to eliminate the financial and credit problems of small firms will be extremely helpful. Possibilities in this field are now being considered both by Congress and some of the administrative agencies of government. It is firmly believed by many observers that all distrust of small business can eventually be eliminated and that all factors of production will come to look to small units for basic supplies and help.

The Smaller War Plants Corporation has in its files complete data of the facilities of over 40,000 small plants. This register of information has been especially helpful when big concerns were in need of efficient small suppliers. S. W. P. C. has knowledge of what these plants make and what they are capable of doing with their machinery and equipment. These listings should be helpful to all producers who, at the present time, are seeking to resume production of civilian goods.

Broad Opportunities

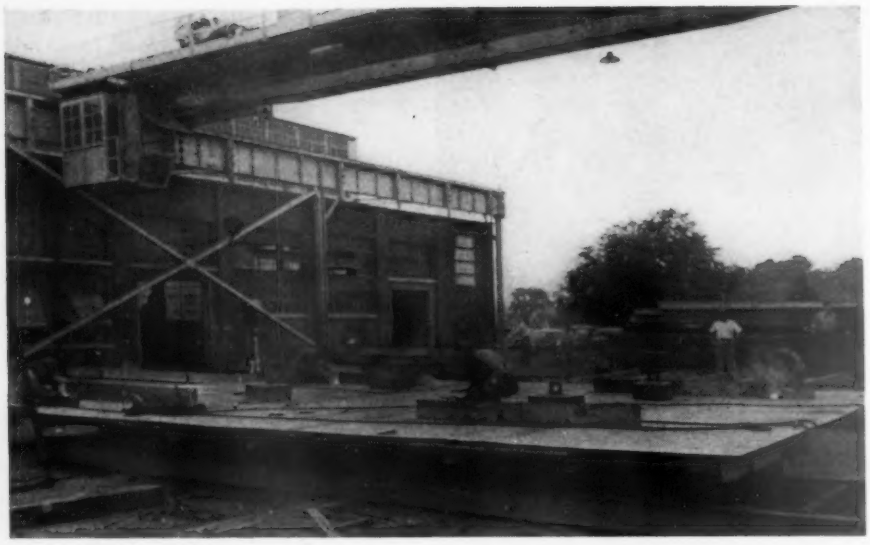
Small business itself can do much to expand its markets. Potentialities for small firms during this transition from total war to partial war economy are great—and will become even greater for small firms during the transition from partial war to peacetime production.

The plastic field, for example, offers limitless opportunities. Plastics can be substituted for metals and minerals. They can be used as parts and sub-parts in many different electrical appliances, accessories for automobiles and other equipment, novelties and specialties, and for a tremendous number of other uses. Appearance of many of these and other items can be improved through the use of plastics, particularly in connection with color and design.

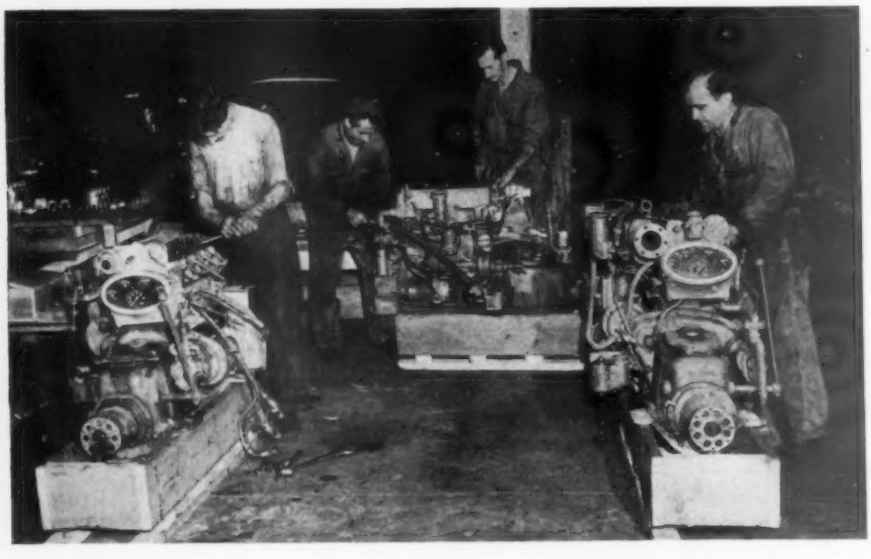
Small business can have a part in the development, production, distribution and final marketing of plastics. It will be an important factor in all of these fields of operation and as a result important to other business and ultimate consumers as a supplier if it can help itself meet the problems which it now faces—if it can obtain the proper and adequate aid of government in meeting these problems.

While the participation of small business in the actual production of aluminum and magnesium metals is probably not possible because of high initial investment charges and subsequent high production costs, there are an indefinite number of opportunities to enter the fabrication and marketing of products being made from these light metals.

Recently, Dr. Willard H. Dow, president of the Dow Chemical Company, appearing before the Senate Small Business Committee, submitted an informal memorandum illustrating thirty-five different ways in which small business can get into fabrication of magnesium products



Little concerns like this Fairfield, Conn., shop have demonstrated their ability to do big jobs



Garage facilities have played an important role in the Diesel engine program

without making any heavy investment. He pointed out that this memorandum should not be considered as all-inclusive, indicating that it is merely a device for the stimulation of thought, not even to be considered a "program or guidebook."

This booklet points out that small business can participate in the production and marketing of the following products which can be made from magnesium: truck bodies, garden tools, house trailers, sporting goods, die castings, portable conveyors, dock boards and portable platforms, cathodic protection, sand castings, dollies, wheelbarrows, shipping containers, and other items.

Small business itself can aid in the development of new products in the light metals field and in the marketing of such items. This will be particularly true wherever weight is a factor in any way.

While the aluminum industry is in need of new markets and will be substantially aided by small business participation in the handling of aluminum products, the future of the magnesium industry is greatly dependent upon the ability of small business to (1) develop, (2) manufacture, and (3) market products which heretofore have not been made from magnesium or which have been made from other metals. Magnesium production has been expanded greatly during the war period with the result that facilities are now available for production of quantities of the metal which have never had a peacetime market.

In speaking of small business prospects in the aluminum field, R. S. Reynolds, president of Reynolds Metals Company testified recently before the Senate Small Business Committee that "the uses of aluminum are too numerous even to mention, and the design, manufacture, and sale of aluminum products presents countless opportunities for small businesses."

Technological advancement, including the discoveries made by all types of industry during the war, has opened up an entirely new field for business in radar, electronics, television, insecticides, pharmaceutics, and many others. Small plants can participate in production and marketing of all these products, as well as many others which will be developed in the future.

Aids in Distribution

One of the most important fields in which small business participates is distribution. This includes: (1) wholesaling, (2) jobbing, (3) retailing, and (4) service operations, including maintenance and repair functions.

These fields, as does manufacturing, lend themselves to new developments which will aid small business. For example: a wholesaler of electrical appliances, the Suttle Equipment Company, Lawrenceville, Ill., is planning to introduce a new method of wholesaling which it calls "milk-route distribution."

Under this program, distribution will take place through a select group of retailers within a 100 mile radius of Lawrenceville. These retailers will deal only in those lines which the wholesaler stocks, concentrating on a few fast-moving lines. Display samples will be used to take orders and deliveries will be made to customers directly from the wholesalers stocks, within three days of the time the purchase order is received.

Under this program, by using display samples, it will be possible for small retailers to operate without inventories, thus eliminating one of the main causes of failure for this type of enterprise. Under this retail-wholesale tie-up, the little fellow will not be tempted to take the plunge, stocking up with excessive quantities of slow-moving goods.

In conclusion, it seems to me that small business is one great source of goods and services for both consumers and other types of business throughout the country. It seems to me that the lessons which small business, big business and government have learned, together with the native ability of small business operators throughout the land can aid materially in bringing more goods to our consumers, more jobs to our workers and in establishing and maintaining a high level of business activity during our present transition period and during the post-war period to come.

Measuring The Performance of a Purchasing Department

The statistical records of purchasing for successive comparable periods provide the logical basis for an evaluation of results



By S. W. KRAUSS

MUCH has been written on the various phases of the work of purchasing departments. For obvious reasons but little has been forthcoming concerning the measuring of the performance of a purchasing department. While admittedly a complex subject which has engaged the attention of many in the purchasing profession, a reasonable answer would be both timely and beneficial, and it is with this view in mind that the following suggestions are offered.

By the measurement of performance is meant the efficiency with which operations are conducted. Efficiency has been defined as: "Effective operation as measured by a comparison of actual with possible results; effectiveness as compared with cost in time, energy and money, and with capacity to perform."

To measure the performance of efficiency of an organization implies the existence of a yardstick or standard by which results may be compared and conclusions drawn. Determining the standards of measurement as applied to purchasing departments poses a problem which is most difficult of solution and deserves careful analysis. We approach this subject with two questions in mind.

(1). What shall be the standard or standards by which we shall measure performance or efficiency?

(2). What is the scope and what are the elements of the purchasing function?

A logical answer to each of these questions would, it seems to me, lead us to at least a tentative solution to the problem.

What shall be the standard or standards by which the performance of a purchasing department can be measured? There come to mind three methods which might be used, each of varying value as applied to this case.

First, it might be possible to work out a mathematical formula, were it not for the intangibles and invariables involved, by which not only the performance of a whole department but also the efficiency of each individual purchase can be measured. Such formulas covering specific phases of purchasing have been proposed and in some cases are in use.

Second, a yardstick in the form of specific rules might be used and the performance measured in the light of these rules. Here, varying interpretations of the rules might lead to rather difficult situations which could invalidate the whole system.

Third, a statistical method could be used whereby the various elements of the purchasing function may be evaluated by some arbitrary standard. The results may be accumulated in a statistical form and comparisons made on the basis of transactions covering one stated period with those of another. This method, while open to criticism, promises—for want of a better one—the best results for our purpose.

In order to measure the performance of a purchasing department it is necessary to clearly define those elements of purchasing that properly belong to it. Then eliminate those extraneous activities which through custom have become identified with purchasing procedure.

Basically, a purchase consists in acquiring title to and possession of goods and services for a considera-

This paper won first prize of $25 in a contest for students in the purchasing course at Marquette University, sponsored by the Milwaukee Association of Purchasing Agents, and was presented at the May meeting of that Association, when the award was announced. Mr. Krauss is a member of the purchasing department of the Waukesha (Wis.) Motor Co. Second prize was awarded to L. F. Whistler of the same organization.

tion. In a broader sense it includes the terms and conditions which attend the purchase. The latter interpretation is related to the function of purchasing as we are familiar with it, and which is being adopted for this discussion. Many of the activities of a purchasing department as usually constituted, such as storing goods, testing and sampling, receiving, inspecting, traffic, and others, are not properly related to the purchasing function as such and therefore shall not enter into our considerations. However, they unquestionably add to the utility of the department.

It is axiomatic that every purchase consists of three elements which are price, quality and service. An effective standard of measurement must include each of these factors to present a true picture of purchasing department performance.

Paradoxical though it may seem, service and quality—even though intangibles—can be more easily evaluated than price. For the most part, service on the part of the vendor consists chiefly in making deliveries on time. Should the lead time agreed upon by the purchaser and the vendor be continually disregarded it is the purchasing department's responsibility to see that a more reliable vendor is obtained.

Quality also can be checked by tests and inspections. If rejections continue to be excessive, purchasing must assume responsibility.

The factor of price is most difficult of all to evaluate. What shall be considered the dollar price at which a commodity should be valued? Should it be the highest price quoted? Should it be the lowest, or should it be the average? Where the price is established on the open market, savings over the market price can be easily arrived at. However, in the case of commodities for which there are a very few suppliers price determination becomes a problem. Perhaps in a situation of this kind, it could be reasoned that the lowest price represents a saving over the highest price quoted since all the bidders are assumed to have quoted the lowest possible prices. While this might be quite acceptable to purchasing departments as a basis for measuring performance, it would, of course, be rejected by accountants as violating the rule that contingent earnings or savings cannot be accepted for accounting purposes.

It has been suggested that some weight be given to the value of the intangibles which influence the performance of a purchasing department. Among these are the ability of the personnel of the department; the integrity, the initiative, agressiveness, cooperativeness and so on. While of unquestioned value, these qualities are eventually reflected in tangible results. Conversely, the results will prove the ability of the personnel. These intangibles can, therefore, be disregarded in measuring the performance.

Making A Report

Having determined the factors to be measured how can we give effect to them in the form of a report? Assuming that the statistical method is best suited for this purpose, data covering each purchase as to deliveries, rejections and price can be accumulated, weighted and charted.

The source for this information would be the purchase order itself or a supplementary form. A space would be provided for the stated time of delivery and the time of actual delivery. Any variation of the latter from the former would weigh against the department since it is purchasing's responsibility to get deliveries on time. Another space on the order or form would provide for the number of rejections applied against the orders. Since defects are bound to occur in every order a percentage of rejections can be established which will be acceptable. Should this percentage be consistently exceeded purchasing should bear the responsibility for not obtaining a more reliable vendor. This data can be shown for purposes of charting as a percentage of the bad units to all the units ordered. Lastly, the price can be shown on the form along with the prevailing market price, the highest and lowest bids—which would reflect negotiated savings—and possibly the last price paid. Any differences can be charted directly in terms of dollar values. Also, prices in order to be comparative would have to be adjusted and weighed in accordance with one of the price indexes in common use.

The question arises whether purchasing should assume the task of maintaining these records. Logic would dictate that the function of recording, collating and interpreting this data should rest in a department separate from purchasing and responsible only to management. If carried on by purchasing, self-interest would impel it to prepare a favorable report even though the facts indicated otherwise.

That information gathered in this form can serve as a guide to future operations is self evident. It is possible that once a body of information based on some system such as this has been accumulated over a period of time values reflected by the data can be made to fit in with accounting methods currently employed.

In addition to the method proposed for measuring individual purchases supplementary records can be used to measure performance. Among these can be included the following:

Materials Record—A summary of the purchases made and the average price paid.

Price Record—A daily record of market prices of all materials purchased by the company.

Chart Records—Charts showing price changes of various materials and inventories.

Savings Record—Report of extra savings made in purchases.

Extra Credits

Activities outside those strictly concerned with the purchasing function such as receiving, testing and storing materials, if carried on by the purchasing department, should be a definite credit to the department. So also should be the responsibility for the sale of scrap and handling of traffic where these duties are under the jurisdiction of the purchasing department. Appropriate records covering the performance of these duties are in general use and offer a comparatively simple problem.

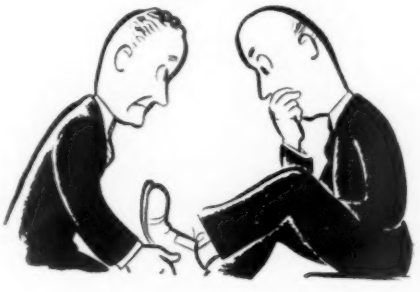
In conclusion, let it be stated that the suggestions offered do not by any means constitute a complete solution to the problem of the measurement of the performance of a purchasing department. These suggestions are offered in the hope that they will lead to a workable and effective method for improving the service rendered by the procurement branch of business and that they will lead to a greater appreciation on the part of management for the indispensable function of purchasing.

When Purchaser Assumes Legal Obligations

It is natural to assume that contracts will be carried out as agreed, but prudent buyers will look ahead to liabilities and remedies at their disposal in the event of a default

By LEO T. PARKER

ASSUMPTION of a legal obligation always results in legal responsibility, but not always legal liability. It is only when a purchaser, for instance, fails actually or effectually to comply with a legal responsibility that he is legally liable to the seller.



Most important is the fact that many of our modern and present day courts do not adhere to the law laid down by older courts. In other words, many of the most recent and modern higher court decisions have decidedly varied from the older ones. Often this change is the result directly, and in other instances indirectly, of the present abnormal business conditions during which many new laws, rules and regulations have been enacted and which affect every industry. And strangely, aside from these usual facts, many modern courts render decisions which make new law, without any apparent reason.

Seller Keeps Merchandise

For example, in the past all higher courts have held that when a purchaser breaches a valid contract of sale, or illegally cancels an order or contract, the seller must sue for damages and *not* for the full contract price of the merchandise. As an illustration of the old law, in 1913 the higher court in Pate v. Ralston, 158 Iowa 411, said:

"To permit the vendor to retain title of merchandise and recover the purchase price would be intolerable. . . ."

If a seller breaches a contract of sale ordinarily the purchaser assumes the responsibility of either suing the seller for damages, and keeping the merchandise; or refusing to accept delivery of the merchandise and suing the seller to compel him to deliver merchandise in compliance with the terms of the contract; or the purchaser may accept the unsatisfactory merchandise and pay the agreed contract price.

Recently, a higher court considerably varied this old and well established law in the case of Lane Mfg. Company v. Strau Company, 15 N. W. (2d) 899, reported December, 1944.

The facts of this case are that a retail shoe dealer placed an order with a shoe manufacturer's salesman for 117 pairs of shoes at $2 per pair, to be delivered August 1. The manufacturer mailed a letter of acceptance which contained a stipulation that no cancellations would be considered "after shoes have been cut."

Notwithstanding this stipulation the purchaser delayed until the manufacturer had cut the shoes and then he advised the manufacturer by letter to cancel the order. The manufacturer refused to comply with this request, and proceeded to complete and ship the shoes. The dealer refused to accept delivery, and gave as the only reason that he cancelled the order.

The manufacturer sued the dealer for $234, the full contract price of the shoes.

According to old higher court decisions this manufacturer impliedly assumed a responsibility to sue the purchaser for damages instead of the full contract price. The lower court relied upon previous higher court decisions and held the shoe manufacturer not entitled to a recovery. However, the higher court reversed this decision, saying:

"Defendant (purchaser) insisted that the only remedy available was an action for damages. The trial court agreed with defendant's theory, . . . The record herein shows that the shoes were made specially for defendant (purchaser). The size run was such that the shoes could only be disposed of at a discount by finding a buyer willing to accept the particular size run. We think that the evidence would warrant a finding that the shoes could not readily be resold for a reasonable price. . . ."



In other words, this higher court indicated that although the purchaser did not take possession of the shoes, yet the manufacturer could recover the full contract price and keep the shoes.

No court seems to have rendered a decision on the rights of a purchaser after a seller is awarded a judgment for the full contract price of merchandise which he keeps and which the purchaser could have owned had he accepted the merchandise and paid the contract price. Whether the purchaser may file a suit and compel the seller to deliver



to him the merchandise for which he has fully paid remains for a future court to decide.

Irrespective of relevant facts, all purchasers should determine in their own minds, before a sale contract is breached, whether the character of the merchandise is such that the seller may find a ready market or sale therefor. If in the negative it is far better that the purchaser accept and pay for the merchandise, rather than invite the seller to file a suit and ultimately recover a judgment for the full contract price and, also, retain title to the merchandise.

Breacher in Disfavor

Under practically all circumstances, a person who breaches a valid sale contract is in "disfavor" of the courts. "Clean hands" is the usual requirement before a litigant may anticipate a favorable court decision. The rule of law is applicable notwithstanding the fact that, apparently, the one who originally fulfilled the exact terms of the contract may not have been so diligent in the subsequent procedures. In other words, when either a buyer or seller breaches a contract of sale he immediately assumes a legal responsibiltiy which is likely to ripen into a legal liability.

For example, in Ames Company v. Busick, 47 N. E. (2d) 647, it was shown that a woman purchased a fur coat for $225. After she wore it for three months she sued the seller to recover the full purchase price. During the trial the buyer proved that the seller had warranted the coat to be new, and free from defects. The buyer alleged that the coat was partly made up of old "used" skins, and was defective "in that portions of the coat became shabby and worn-looking without excessive wear in three months" time.

However, the seller argued that the buyer was not entitled to recover the *full* purchase price, because she wore the coat for a considerable period of time during the winter season and she did not offer to restore it to the seller until the season for wearing the coat had practically passed.

Notwithstanding this argument the higher court ordered the seller to take back the coat and return the full purchase price.

Under any ordinary settlement agreement, the court may have held the seller obligated to pay to the purchaser only $225, the full contract price, less the amount equal to the reasonable worth of the coat during the period the purchaser wore it. However, since the seller had breached the original contract he assumed the responsibility to incur disfavor of the court and be held fully liable.

Defects Apparent

Modern higher courts hold that a purchaser may avoid payment for merchandise or equipment, if the testimony proves that it is so unfit for the purpose for which it was purchased, that it must be assured that he would not have bought it, had he known of the defects.

For illustration, in Standard Supply Company, Inc., v. Goudchaux's, 11 So. (2d) 96, reported July, 1944, it was shown that a seller entered into a verbal contract with a purchaser to install an air conditioning



or ventilating system. After the system was installed, it proved unsatisfactory to the purchaser and he refused to pay for it. Suit was brought by the seller to recover the contract price.

The principal dispute in the case revolved around the nature of the guarantee. The testimony relating to the guarantee was contradictory. However, since the purchaser proved that the breeze could only be felt in those parts of the store near the openings where the air was being pulled into the building, the higher court refused to hold the purchaser obligated to pay the seller for the system, and said:

"The facts show that the cooling system was so defective and imperfect in construction and operation, and its use so imperfect, that it may be supposed that the defendant (purchaser) would not have contracted for its installation had he been aware of its deficiencies in performance and the result to be obtained from it."

Also, see Safe-Way Feed Company v. Fuller, 51 N. E. (2d) 870, reported February, 1944. In this case it was shown that a seller sued to recover money for merchandise delivered in accordance with the terms of a contract. The purchaser attempted to avoid liability on the contention that the whole contract was rendered void because certain parts of the agreement were illegal and unlawful.

Although the lower court refused to hold in favor of the seller the higher court reversed the verdict, and in holding the purchaser bound to pay the full contract price to the seller said:

"Where a contract is made up of several agreements, and one agreement of covenant is illegal, if the illegal covenant can be eliminated without destroying the symmetry of the contract as a whole, the courts will do so and enforce the remainder."

Therefore, it is quite apparent that this higher court established law, as follows: Where a contract is founded on several promises and one party attempts to avoid his responsibilities because some parts of the contract are illegal, the promises which can be separated from the illegality will be held valid.

Statements Not Binding

Either the seller of buyer may assume undesirable responsibilities by signing certain untrue statements. However, the court will not conclude that such statements are binding if testimony proves that the other party breached the contract.

For example, see State National v. Cantrell, 143 Pac. (25) 592, reported January, 1944. In this case it was shown that purchased equipment failed to give the purchaser reasonable service. There had been signed by the seller and by the purchaser a conditional sale contract which contained a clause as follows:

"The seller would guarantee said equipment for a period of five years."

The purchaser paid part down and gave his notes for the balance due. Soon afterward he signed a letter stating that the equipment purchased has "been completely installed and is satisfactory."

The seller sold the notes and the contract to a bank. Within a few months the purchaser discovered that the equipment was partly second-hand and was unfit for the purposes for which it was purchased. The purchaser refused to pay the notes held by the bank, and the latter sued the purchaser to recover payment.

It is interesting to observe that the higher court held the purchaser not liable nor required to pay the notes.

This court said a signed statement by a purchaser that the subject of a sale is "satisfactory" is not positive but may be considered along with all other evidence whether or not there has been a breach of either an expressed or implied warranty on the part of the seller.

Title Does Not Pass

Also, see Rudy-Patrick Seed Company v. Roseman, 13 N. W. (2d) 347, reported May, 1944. The testimony showed that a seed company, under a written contract dated June 24, purchased certain seed. The contract clearly stated that the sellers *"have this day* sold" to Rudy-Patrick Seed Company 3500 bushels of Rough Ky Bluegrass. The seed was sold f.o.b. the seller's location and it was to be delivered to the purchaser on "or after July 15 in dry, sound, merchantable condition."

When the date for delivery arrived the sellers refused delivery. The purchaser filed suit to get possession of the seed. The purchaser contended that since the contract specified that the sellers "have this day sold" the seed *this* proved positively that the purchaser owned the seed from the date the contract was signed on June 24.

However, since the purchaser had not offered to pay *in advance* for the seed, the higher court refused to hold in favor of the purchaser and said that a contract for the sale of seed or other merchandise which provides that the seller has "this day sold" the merchandise does not pass title to the buyer unless he pays the full contract price in advance or the seller expressly agrees to extend credit.

Therefore, unless a contract of sale clearly specifies that merchandise is being sold on credit, the law implies that the purchaser intends to pay cash in advance *before* the goods are delivered.

Thus, a purchaser may automatically assume a legal liability by purchasing merchandise without a full and complete understanding regarding payment.

Another example of payment liability is found in a recent higher court decision where a contract failed to specify how payment for the merchandise would be made by the purchaser. The seller shipped the goods by draft and directed the purchaser to make the payment through a bank named by the seller.

The higher court held the seller liable for breach of the contract. This court explained that when a contract does not specify when and how payment shall be made the purchaser must pay cash *but* the latter and not the seller may designate the manner of payment.

Receipt Not Valid

Another important point of modern law is that a receipt for money paid for merchandise is not valid unless it clearly shows in the face that the payment is being made *exclusively* for benefit of the seller.

Fur illustration, in Rapid City Tire and Tread Company v. Hamm, 6 N. W. (2d) 442, it was shown that the Rapid Corporation sued a purchaser to recover payment for tires. The purchaser introduced as



evidence a receipt he had received from Al Poppert, the former general manager of the corporation. This receipt reads as follows: "Received of Claud L. Hamm (purchaser) payment in full of account on tires. Payment assumed by and charged to account of Al Poppert. Rapid Corporation, Al Poppert."

In other words, the receipt clearly indicated that the money paid by the purchaser may be appropriated by the general manager, instead of being paid to the corporation.

In view of this testimony the higher court held that the purchaser must again pay the account directly to the Rapid Corporation. This court said:

"One in the position of Claude



RECENT COURT DECISIONS GIVE NEW ANSWERS TO BASIC QUESTIONS ON CONTRACT LAW

Do pencilled initials, rubber-stamp or typewritten signatures complete a valid contract?

In the absence of specific contract terms, who decides how payment shall be made?

What effect has contract date on the ownership of goods under a sales contract?

Is the purchaser liable for poyment of notes given on a contract breached by the seller?

When one part of a contract is illegal, does this destroy the validity of the entire agreement?

How far can a purchaser rely upon an implied warranty of fitness for the intended purpose of equipment?

Can a seller collect the full contract price and still retain title to merchandise?

Can a seller recover the full contract price after having used and received service from merchandise?

Does a receipt for payment to an employee or officer of the seller discharge the buyer's contractual liability?

What is the value of a written verification of an oral contract?

Hamm (purchaser), who acts with full knowledge, must be held to know that a general manager of a corporation is without authority to divert its assets to his personal ends."

The purchaser's only recourse now is to sue and recover the money from Al Poppert, the former general



manager of the tire corporation. If Poppert cannot be located, or if he is insolvent, or for other reasons the purchaser may not be successful in recovering this money. Therefore, all receipts received from employes should be carefully scrutinized to determine their legal value.

Oral Contracts Unsatisfactory

While it is advisable to carefully inspect all written instruments, yet a greater chance for unprofitable litigations arises from oral agreements. Very frequently the courts are unable to arise at a satisfactory decision because testimony relating to verbal agreements is contradictory. Generally speaking, however, the higher court will approve the verdict rendered by the jury.

For example, in A. M. Edwards Company, Inc., v. Hammond Box Company, Inc., 17 So. (2d) 53, reported May, 1944, the litigation between a box manufacturer and a purchaser involved discounts or rebates. The counsel for the box company contended that the purchaser was entitled to 2 cents per crate rebate *only* on the *first* 30,000 crates purchased during the season, whereas Mr. Edwards the purchasing agent contended that he was entitled to this rebate on *all* crates purchased during the entire year.

During the trial Mr. Edwards testified that before the beginning of the strawberry season he was contacted by Mr. Cross, a salesman for a box manufacturer, for the purpose of selling to him strawberry crates. Edwards testified further that Mr. Cross and an official of the box company promised a rebate or discount of 2 cents per crate on *all crates* purchased during the season. However, the box manufacturer's salesman, Mr. Cross, testified that he obtained an order for 30,000 crates from Mr. Edwards at the regular price of 20 cents, allowing him a discount of 2 cents per crate on this order. However, the salesman testified there was no agreement to allow the discount on other crates, although Edwards purchases many thousand more than the original 30,000 crates.

The jury listened to the conflicting testimony and rendered a verdict in favor of Edwards. The higher court approved the verdict, saying:

"Suffice it to say that this case presents purely a question of fact and the evaluation of contradictory testimony. The lower court was in much better position than we are to say which of the two is to be believed, Mr. Edwards or Mr. Cross. Evidently the trial judge believed the testimony of Mr. Edwards."

So, therefore, it is quite apparent that Edwards, the purchasing agent, may have eliminated expensive litigation by having made with Mr. Cross a *written* contract *definitely* stating that the box manufacturer would allow a rebate of 2 cents on each crate purchased during the season.

Send Written Verification

If for any reason no formal written contract is made with a seller the purchasing agent should send a written communication or verification to the seller. This communication should contain a clear outline of the verbal agreement. If either the purchaser or seller proves that he mailed such a letter, the court will *presume* that the addressee received it notwithstanding the fact its receipt is denied.

For instance, in the leading case of Syndicate v. Gatti, 176 N. E. 169, the outcome of a litigation hinged upon proof whether or not a letter actually was received by the addressee.

The sender proved that the letter was deposited into a government regulation mail box.

It is important to know that the court *presumed* that the letter was promptly delivered to the addressee, and said:

"There is due proof of the addressing and mailing. . . . The mailing created a presumption that it reached its destination. . . . The presumption is founded upon the probability that the officers of the government will do their duty, and the usual course of business. . . . The court could take judicial notice of the fact that a letter mailed by the plaintiff to the defendant would be delivered in the usual course of the mails in the event that it was not a Sunday or holiday, and, if a Sunday or holiday, on the next succeeding business day."

Thus, if a purchasing agent mails a verification letter and no answer is received from the seller, it may be presumed with reasonable assurance that in event future litigation is unavoidable this letter may be introduced for convincing testimony in favor of the purchaser.

Signature Validity

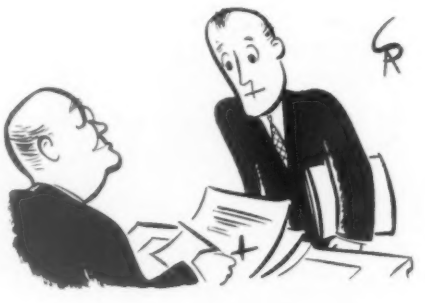
Frequently, although a written contract is made between a buyer and seller, the latter endeavors to avoid responsibility on the plea that the contract was illegally signed.

Therefore, it is important to know that any form of a signature, such as that made with rubber-stamp, typewriter, symbols, initials, and the like may complete a valid contract.

For example, in Greenland v. Carter, 258 N. W. 678, it was disclosed that a contracting party did not sign his full name to a contract, but signed it with his initials, "H. C." in pencil.

It was argued that a signature of this kind is not sufficient to make a contract valid and enforceable. However, the higher court held the contract valid, and said:

"Instruments are properly signed, although only the initial letter of christian names, with the surname written in full, are used, or last name only, written out in full, or contain only the christian name of the person signing. A signature may be made by the use of initials only. . . . Initials alone, if used as a signature, are as efficacious as a signature as



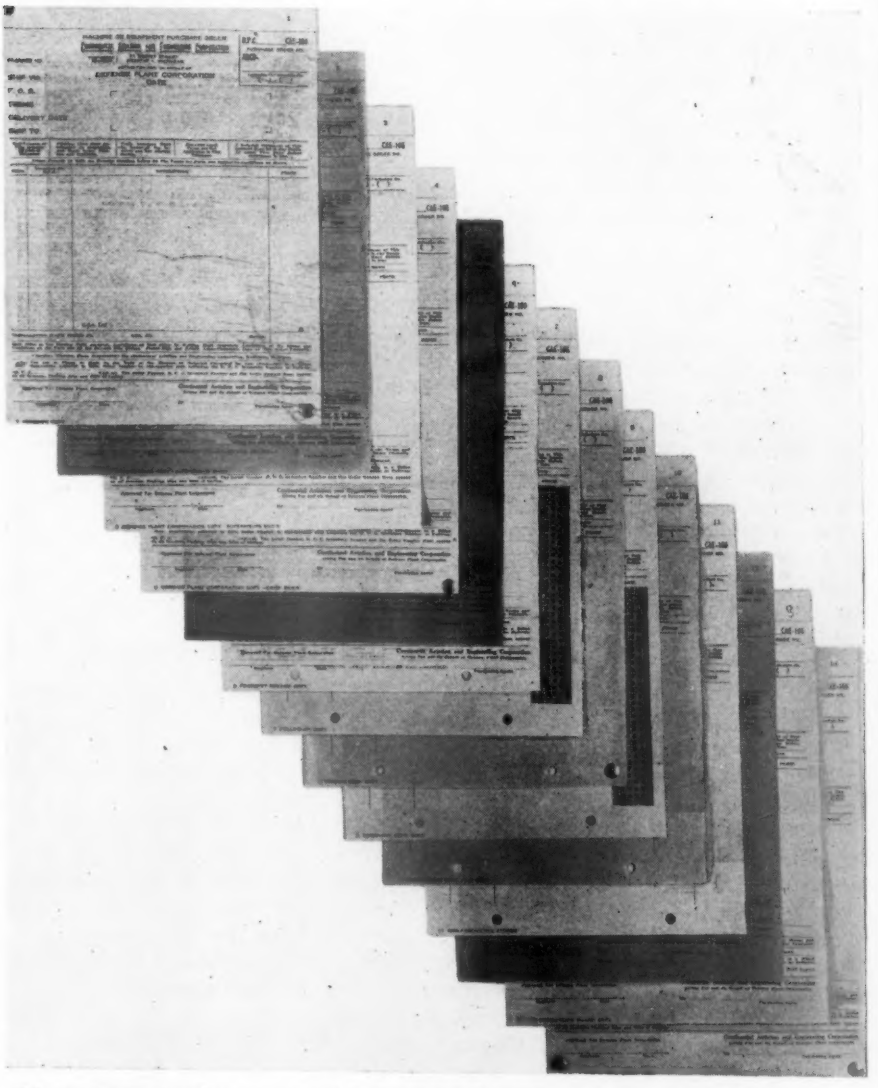
the whole name at length."

Many other higher court decisions are available which hold that any form of signature or mark is valid, and results in a valid and enforceable contract, if testimony is given which proves that when the signatures were affixed both the buyer and seller *intended* to make a valid and binding contract.

Breaking Bottlenecks in Purchase Order Writing

Simplicity, flexibility, and a positive check against errors in transportation or from dim carbons, feature this system in which one master copy controls the order

By R. A. DOOLEY
Manager, Records and Education
Addressograph-Multigraph Corp., Cleveland



Thirteen sheets of carbon paper must be inserted between the various copies of this war contract purchase order set formerly used by a large company. The carbons are removed for further use after this order is typed. Only the first six copies are clear and legible unless excessive pressure is exerted. The paper stock used is more expensive than regular stock which can be used in the Multilith-Systemat method.

PURCHASING men in particular dream of the day when they will again be free of the complications and red tape coincident with doing business in a world of material scarcity and priorities. Toward that end, they are already casting fleeting glances longingly toward any practical means of simplifying and improving their purchase order writing systems.

Opinions differ widely as to how soon that long-looked-for day will come. The fact is that priorities and material scarcity in themselves demand purchasing system streamlining and the purchasing agent who takes advantage of modern, simplified methods and machinery puts his department ahead for now and for the time when normalcy returns.

What is needed sorely and particularly by those ambidextrous companies that cater to both Uncle Sam and to the civilian population, is a purchasing system that will help them avoid costly errors. This is true regardless of a company's size, the nature of its internal organization or the character of the service or supplies it handles. Its type of manufacture does not matter particularly; its purchase requisition and order writing procedure must recognize certain common principles of sound purchasing practice.

Objectives

The aim of good purchasing practice, as every modern purchasing executive knows, is to buy and receive goods and services required by his business in the simplest, most direct, most accurate and the most economical manner.

He knows that any elaboration upon the simplest and most effective procedure will create a duplication of effort and invite error. And the procedure must be thoroughly un-

derstood by every person involved in its operation.

He knows that the responsibility for the effective completion of every single step in the purchasing procedure must be delegated to one individual and that only authorized individuals should be allowed to initiate the purchasing requisition.

He knows also that the procedure must achieve the desired end result at a reasonable cost and that it must be flexible.

These basic principles of procedure have long been universally accepted by business as being sound and desirable. The actual flow of paper routine in purchase order writing is, however, so varied that no hard and fast rule can be set up to cover all requirements. Every company has its individual requirements and its established routine.

The only reason that any company will consider a change in its present procedure is that it will receive some of the benefits of simplification or eliminate some of the liabilities of its present system, or a combination of both.

Bottlenecks

So let us examine the bottlenecks of some present purchase order systems. Number one on the list should certainly be the necessity for making and distributing numerous copies of the orders. Even the smallest business cerncern generally requires at least six copies of its purchase orders and larger concerns almost invariably require many more. Of the six copies, two are usually provided for the receiving department and one of these is sent to accounts payable, authorizing payments for goods and services received. If additional copies are needed to complete the receiving function, six copies will not be sufficient for the transaction.

Occasionally a copy must be made available to testing laboratories to determine whether materials received conform to specifications on the order. A copy to the raw materials storekeeper advises him that he must make room for a certain shipment on a certain day. Some companies require copies for branch offices to keep them advised on purchasing activities.

If the company uses expeditors to follow up orders, and many do, several additional copies of each purchase order are used here.

The traffic department should have at least one copy so that it can make certain that the most economical and direct routing may be made. There are many variations of systems which may require additional copies.

If a system embodying the use of carbon paper is employed, it is not difficult to envision copies that are dim and blurred, copies that are almost illegible, that might create costly mistakes. In this procedure, errors in typing cause either one of two things. The typist who corrects an error consumes time in making the correction on numerous carbon copies. Frequently she may do the entire order over rather than correct a mistake. In either case, the production time of that purchase order goes up and the number of purchase orders for the day goes down.

Simplification

Many companies of varying sizes throughout the country have simplified their purchase order writing by installing Multilith-Systemat systems. The Multilith duplicator produces as many copies of the purchase order as may be required, without additional effort or expense, and everyone who has need for a copy receives one that is as clear and legible and as correct as the original. Any writing machine or manual writing tool can be used in their composition. If a mistake occurs, the typist has only one copy to erase and correct, the single master form. Corrections are made with an eraser and they cannot be detected on the finished copies.

Here is how one large manufacturer recently revised its purchasing system to obtain the convenience, flexibility, simplicity and economy of the Multilith-Systemat method.

Former Procedure

Formerly, after receipt of a properly authorized requisition for purchase, the purchasing agent designated the vendor and indicated any special instructions. Clerks assigned priority ratings and necessary clauses. The requisition was then given to the typist to write the purchase order, using pre-numbered sets of printed, padded forms. Continuous or snapout forms were not practical in this instance.

Several sets of forms were used under the former procedure. One set consisted of seven sheets and was used to purchase materials for manufacturing the company's regular products. Another set, for example, consisted of 13 sheets and was used to purchase materials used in certain war products. Other sets were designed to serve specific needs. Extra copies were needed on some of these orders and fewer were required on others, depending upon where inspection of materials ordered was made.

Carbons were inserted by hand because of the variable number of copies required and the purchase order was typed in accordance with information on the requisition, using Electromatic typewriters. Carbons were removed for re-use, being usable for typing about five times. Sets were then torn apart and distributed. An average of 175 orders were being written daily.

Conversion steps: Copy and layout of former purchase order forms were reviewed and redesigned. Color distinction was retained for identification of the various copies of a set. When the redesigning was completed, a quantity of Pink Systemat Masters was prepared.

Simplified Procedure

In the purchasing department, a Multilith Duplicator with large handwheel and special quick-change clamps on the plate cylinder was installed. Sulphite paper stock was secured in seven different colors, gathered into sets in mill-sized sheets, cut to size and packaged in sets of 100.

Approximately 20 Addressograph plates were embossed with special clauses and instructions frequently used on purchase orders. A hand Addressograph was used for imprinting special clauses on the Systemat Masters. The same writing machines were used to write the variable part of the order.

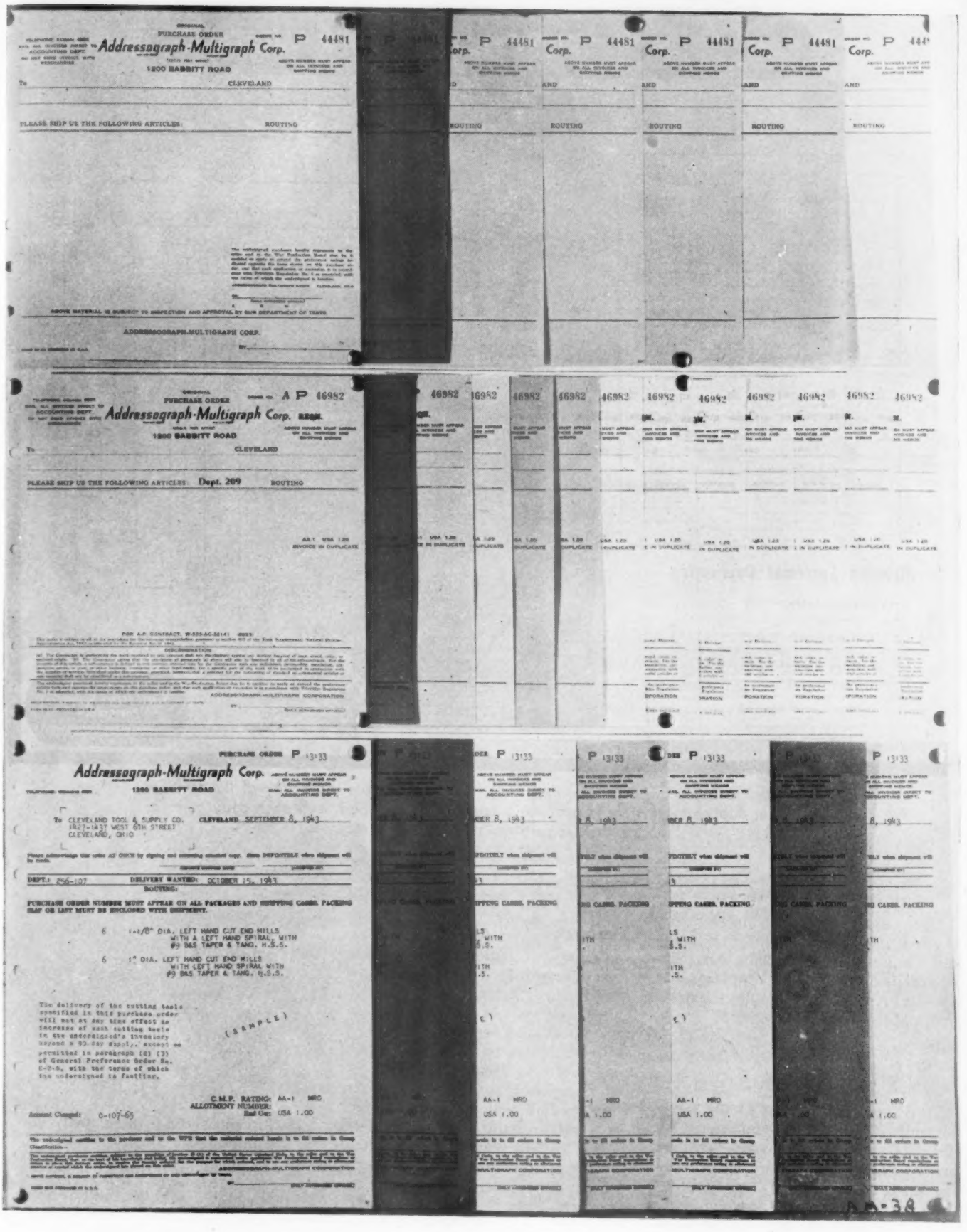
After the requisition for purchase had been approved by the purchasing agent, it was given to clerks to enter rating information and special clauses. Also, a purchase order number was assigned from a consecutively-numbered purchase order register.

A typist then writes the Systemat Master using Addressograph for special clauses. If extra copies of the order are required, it is noted on the bottom of the mat and then given to the Multilith operator.

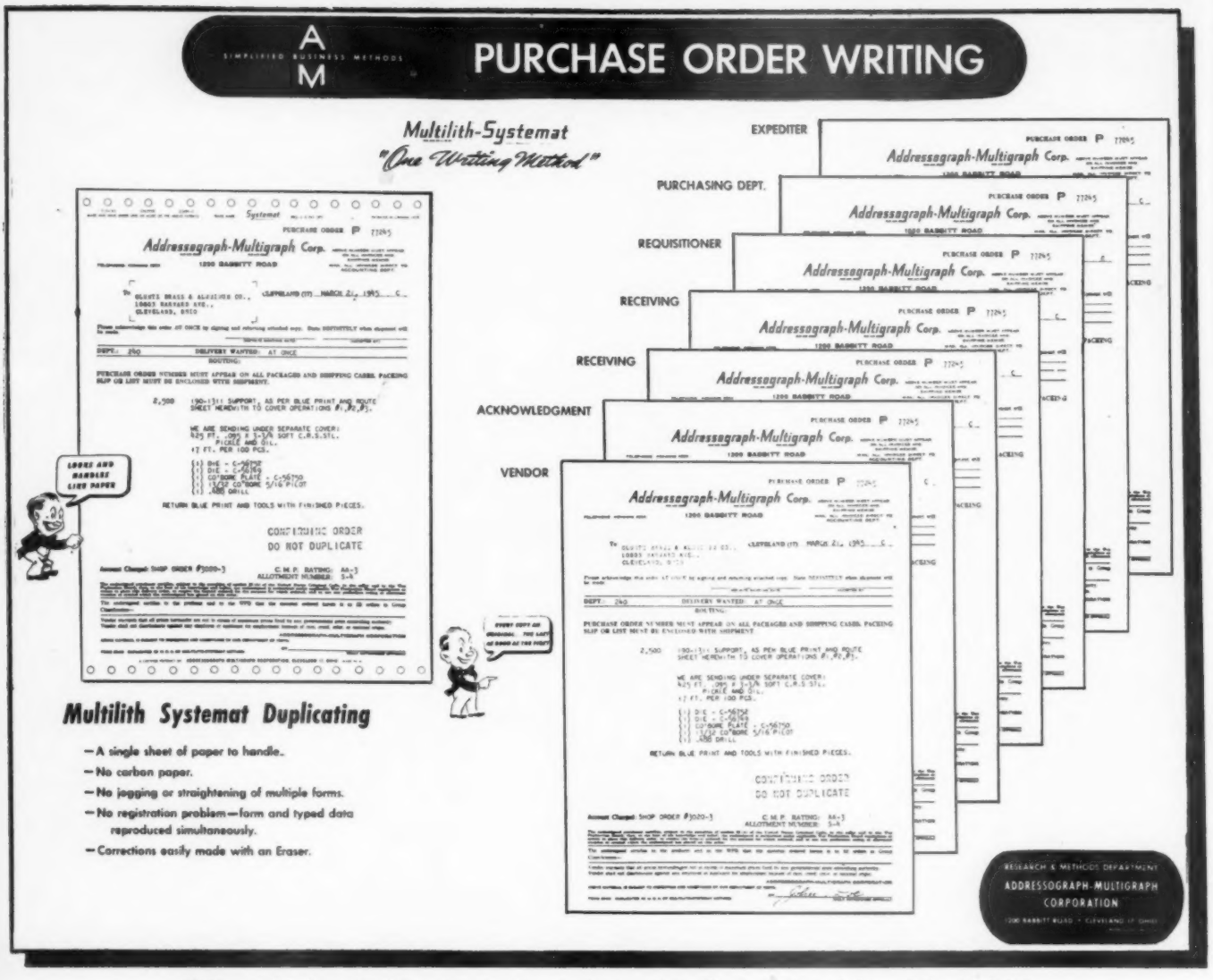
Color Copies

The completed purchase order is turned over to the purchasing agent along with the requisition for checking. He signs the original copy (white) and this, together with the goldenrod copy (acknowledgment copy) is sent to the vendor. The vendor enters promised shipping date, signs acknowledgment copy and returns it to the purchaser.

A pink copy is used as file copy by the purchasing department, serving as an order register control.



These three sets of purchase orders illustrate some of the advantages of the Multilith-Systemat method of duplicating copies. Order No. P-44481 (top row), is a regular purchase order set formerly used and Order AP-46982 (middle row) is a war contract purchase order set formerly used. Both have the obvious disadvantages of the outmoded carbon paper method. For comparison, a new contract purchase order set produced by Systemat is also included, (bottom row).



This graphic layout of purchase orders is designed to illustrate the ability of the Multilith Systemat duplicating system to produce a multiplicity of copies, with each copy as clear as the first, regardless of the number required.

Yellow and green copies are sent to the receiving department and held until material is received. After it is received, the green copy is sent to the Accounts Payable department, authorizing payment.

Russet Copy

A russet copy is sent to the person who initiated the requisition. A blue copy is required whenever the order includes a CMP preference rating. These copies make it easier to keep CMP records correct and up-to-date, and also provide a ready file for quick reference and for government inspection.

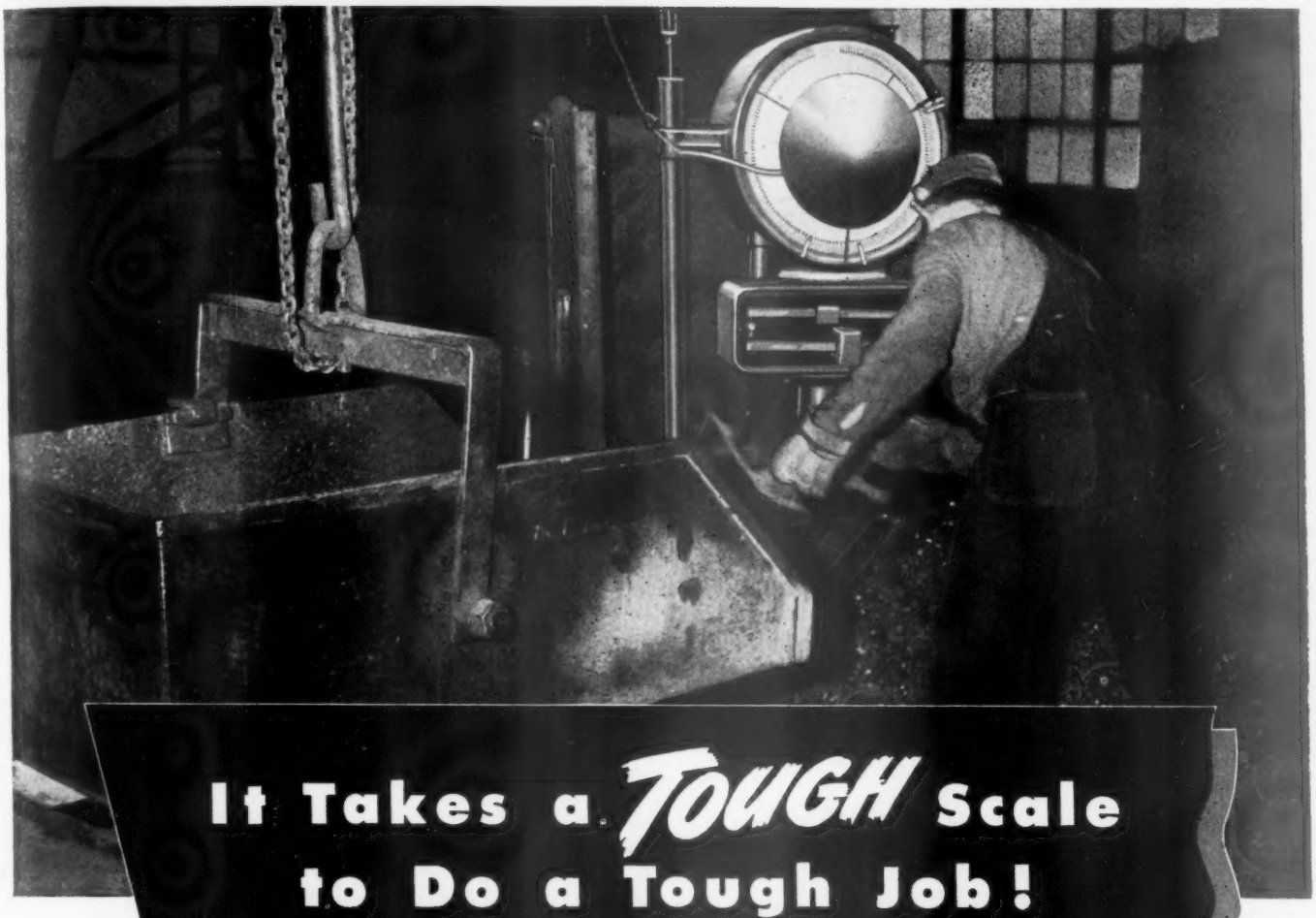
When material is purchased for use in war contracts, various extra copies are required. These are white sheets preprinted in red to designate distribution.

Advantages of this system are many. Here are a few:

1. Typist handles only one "paper like" sheet—the Systemat Master.
2. There is no carbon paper to insert and remove.
3. Simplifies corrections — one correction with an eraser instead of many.
4. Special clauses are written with an Addressograph at one stroke instead of a character at a time, insuring accuracy.
5. Orders consisting of two or more pages have the same number identification because it is assigned when the order is written. This improves purchase order control.
6. Any number of extra copies can be prepared by adding such sheets to the sets in the feeder of the Multilith.
7. Every copy of the purchase order is an "original" copy, uniformly legible.
8. Paper stock is less expensive. (No thin paper in the set.)
9. Copies are easier to file, find and handle.
10. Changes, such as deletions or additions to basic forms, can be readily made.
11. Inventory of printed forms is eliminated.
12. There is no obsolescence.

The example cited here is but one of many that could be listed among leading American manufacturers.

Methods that simplify purchasing systems in these times will certainly be of inestimable service during the coming periods of reconversion and readjustment pending normalcy and peace.



It Takes a TOUGH Scale to Do a Tough Job!

● Powdered abrasives floating around are mighty hard on any machine. Yet a Fairbanks-Morse Scale gives perfectly satisfactory service under just such conditions.

At The Perfect Circle Company this scale has been doing a tough, dirty job year after year—and still goes on. It is obvious that the quality of a piston ring must be precisely controlled. That control must start at the foundry. Here a Fairbanks-Morse Scale accurately weighs the ingredients of each charge for the cupola. The reason it gives such dependable service is that Fairbanks-Morse Scales are designed specifically to do every job, usual or unusual, with the greatest possible efficiency.

Over 115 years ago Thaddeus Fairbanks established principles still used in modern scales. And since he began working to improve weighing, we've never stopped.

A Few Other Jobs Fairbanks-Morse Scales Can Do for You

- Count large or small parts
- Weigh and record moving materials
- Guard formulas in compounding
- Weigh cars while in motion
- Print weight on shipping records
- Automatically control weight of aggregates
- Weigh from fractions of ounces to railroad cars
- Determine center of gravity of airplanes

For further information write Fairbanks, Morse & Co., Fairbanks-Morse Building, Chicago 5, Illinois.

BUY MORE WAR BONDS

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A name worth remembering

Diesel Locomotives • Diesel Engines • Generators • Motors • Pumps • Scales
Magnetos • Stokers • Railroad Motor Cars and Standpipes • Farm Equipment

New PRODUCTS · IDEAS

Purchasing Agents and their Assistants are invited to Check the Coupons on the "Know-How" Pages, Nos. 10, 12, 14 and 16, for late catalogs and bulletins on New Products, Materials, Finishes, Equipment, etc.

HIGH FREQUENCY HEATER



HIGH frequency electronic heater is announced by the Climax Engineering Co., Clinton, Ia. It is especially adaptable for the food industries, for sterilization, pasteurization, deactivation of enzymes, cooking and heating, baking, destroying infestations, packaging and sealing. The company expects to produce 12 models of standard electronic heaters for industrial and other uses.

AIR-TRU FLAT GROUND STOCK

DEVELOPMENT of a non-deforming flat ground stock, to assure high accuracy in jigs, gages, fixtures, tools, punch and die facings and small precision parts, is announced by Simonds Worden White Co., Dayton, Ohio. Its tradename is Air-Tru, and it is available in all standard stock sizes.

SAPPHIRE THREAD GUIDES

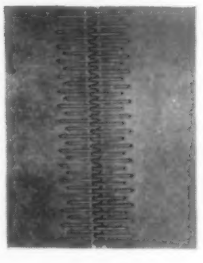


ILLUSTRATION shows sapphire thread guides made by the Sunray Electric, Inc., Warren, Pa. They have possbile application wherever hard, long wearing, abrasive resisting and low fractional surfaces are desired. The rod shaped sapphires lend themselves particularly to the manufacture of such items as thread guides, phonograph needles and small bearings.

"GRAKO" LIQUID BELT DRESSING

NEW formula liquid belt dressing is announced by Graton & Knight Co., Worcester 4, Mass. Its most important quality is said to be its ability to restore power transmission capacity to transmission belts; tests showing improvement of 15% to 20% increase in transmission from rating upwards with greater percentage rise for belts which are pulling under their rating. It is claimed to produce an instantaneous power rise. It is known as Grako New Formula dressing.

WIRE BELT HOOKS



LINE of hinged type wire belt hooks, known as Bristol's Belt Hooks, is announced by mill supply division of Bristol Co., Waterbury, Conn. They are designed for joining all types of flat belting, including leather, fabric, rubber, and balata belts. Various sizes are offered to take care of belts up to ⅜" thick. They are described in Bulletin No. 737.

HEAVY DUTY STEAM CLEANING COMPOUND

HEAVY DUTY steam cleaning compound marketed under the name of Steam-Off is announced by Turco Products, Inc., 6135 So. Central Ave., Los Angeles, Calif. It is said to be particularly effective in the removal of heavy, stubborn grease and dirt from iron and steel surfaces, concrete, brick, and constructural materials, steam shovels, tractors, road building machinery, etc. Compound does a clean job, rinsing freely, leaving no curds, water spots, film, or streaks. In stronger solution it is said to have the ability to remove painted surfaces as it cleans.

MINIATURE ELECTRON TUBES



ILLUSTRATION shows miniature electron tubes designed for use in battery-operated radio receivers, hearing aids and other electronic circuit applications where light weight and compactness are important considerations, made by Sylvania Electric Products Inc., Emporium, Pa. The types include a complete line of T-5½ sizes.

QUAKER IMPROVED CHLORINATED LIME

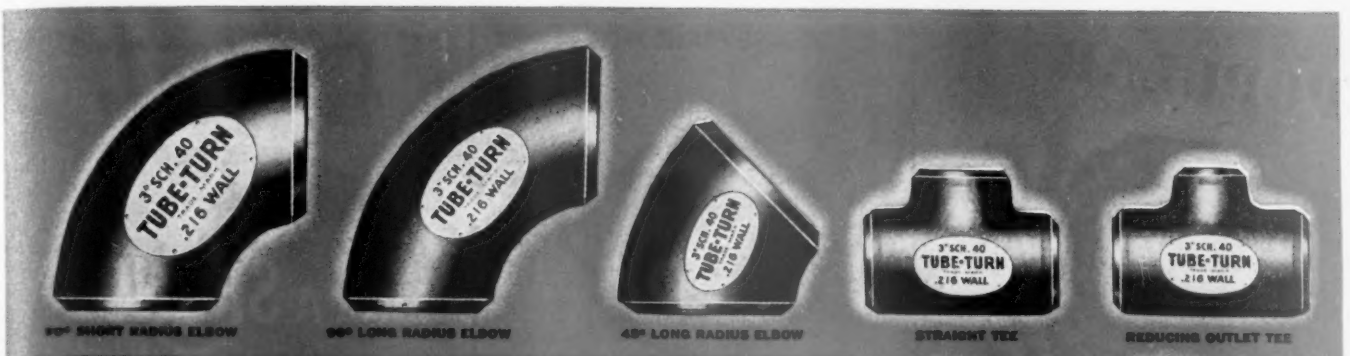
BETTER stability characteristics, more uniformity and lower moisture content are said to feature Quaker Improved Chlorinated Lime announced by the Pennsylvania Salt Manufacturing Co., Widener Bldg., Philadelphia, Pa. The material conforms to Chemical Warfare Service Specifications No. 197-54-281B, Grade II.

NEW SPEED VISE



QUIKCET alloy-steel 3-inch machinist's vise which eliminates running in or out the screw to close or open vise, is announced by Grand Specialties Co., Grand Ave. at Troy, Chicago, Ill. Vise can be set and closed in a jiffy by simply pushing on body of free jaw which slides in on ratchet screw and two precision guide rods and tightens with a turn of the handle. It opens instantly to full 3 inches by pressure of thumb or finger on trigger release after release of tension. It is equipped with bottom screw clamp as well as slots for bolting to bench.

(*Continued on page* 118)



TUBE-TURN

TRADE MARK



WELDING FITTINGS AND FLANGES

TUBE-TURN WELDING FITTINGS—RANGE OF SIZES

Type of Fitting	Description	Standard Weight	Extra Strong	Schedule 160	Double Extra Strong	Light Gauge	
						Nominal Pipe Size	Iron Pipe Size
Elbows	90° Long Radius	½"-24"	¾"-24"	1"-12"	1"-8"	4"-24"	3"-12"
Elbows	90° Short Radius	1"-30"	1½"-30"				
Elbows	45° Long Radius	½"-30"*	¾"-30"*	1"-12"	1"-8"	4"-24"	3"-12"
Returns	180° Long Radius	½"-24"	1"-24"	1"-12"	3"-8"	4"-24"	3"-12"
Returns	180° Short Radius	1"-30"	1½"-30"				
Returns	180° Extra Long Radius	1"-2½"	1"-2½"				
Tees	Straight	¾"-24"	¾"-24"	1"-12"	1"-8"		
Tees	Reducing Outlet	¾"-24"	¾"-24"	¾"-12"	1"-8"		
Reducers	Concentric & Eccentric	1x⅜-24x20	1x⅜-24x20		1x⅜-12x10		
Caps		1"-24"	1"-24"		1"-8"		
Stub Ends	Lap Joint	1"-24"	1"-24"				
Nipples	Shaped, 90° to Header	1¼"-12"	1¼"-12"				
Nipples	Shaped, 45° to Header	1¼"-12"	1¼"-12"				
Saddles		2"-24"**					
Laterals	Straight	1¼"-24"	1¼"-24"				
Laterals	Reducing-on-Run	1¼"-24"	1¼"-24"				
Crosses	Straight	¾"-24"	¾"-24"				
Rings	Welding	¾"-12"	¾"-12"				
Sleeves	Welding	2"-24"**					

SUPER Tube-Turn 45° long radius elbows, 90° long radius elbows, and 180° long radius returns available in both Standard weight and Extra Strong in sizes from 3" to 12". Tube-Turn welding fittings and flanges conform to applicable ASA and ASTM Standards. For further details please refer to Tube Turns catalog and data book No. 111.

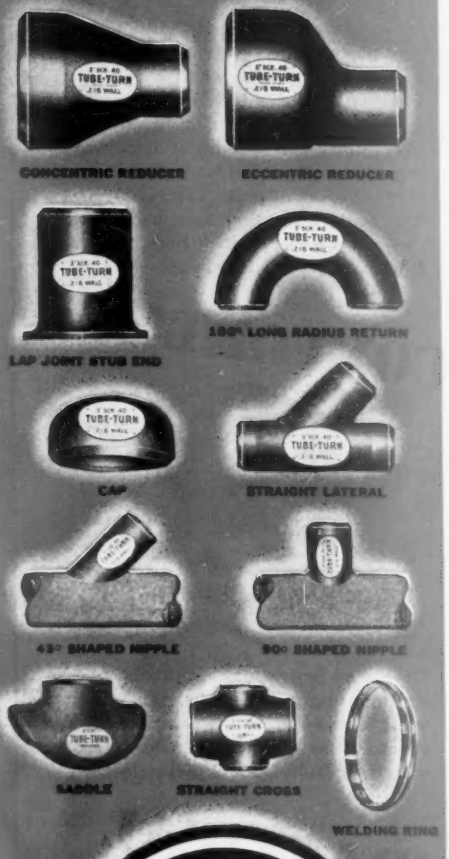
*30" size short radius.

**Since saddles and sleeves are used for external reinforcement only, they do not conform to iron pipe size thicknesses.

TUBE-TURN FORGED STEEL FLANGES—RANGE OF SIZES

	150 Lb.	300 Lb.	400 Lb.	600 Lb.	900 Lb.	1500 Lb.	2500 Lb.
Welding Neck	½"-24"	½"-24"	½"-24"†	½"-24"	½"-24"*	½"-24"	½"-24"
Slip-On	½"-24"	½"-24"	½"-24"†	½"-24"	½"-24"*	½"-24"	½"-24"
Lap Joint	½"-24"	½"-24"	½"-24"†	½"-24"	½"-24"*	½"-24"	½"-24"
Threaded	½"-24"	½"-24"	½"-24"†	½"-24"	½"-24"*	½"-24"	½"-24"
Blind	½"-24"	½"-24"	½"-24"†	½"-24"	½"-24"*	½"-24"	½"-24"
Socket Type	¼"-24"	¼"- 4"		¼"-3½"			
Reducing-threaded or slip-on	¾"-24"	¾"-24"	¾"-24"†	¾"-24"	¾"-24"*	¾"-24"	¾"-12"
Orifice—threaded		1"-24"	4"-12"	4"-12"	3"-12"	1"-12"	
Orifice—slip-on		1"-24"					
Orifice—welding neck		1"-24"	4"-12"	1"-12"	3"-12"	1"-12"	
Long Welding Neck	1"-24"	1"-24"	1"-10"	1"-10"	1"-10"	1"-10"	

†Dimensions on sizes thru 3½" same as for 600 lb. flanges.
*Dimensions on sizes thru 2½" same as for 1500 lb. flanges.



The FIRST SEAMLESS WELDING FITTINGS 1ST AND STILL THE BEST

Selected Tube Turns distributors in every principal city are ready to serve you from complete stocks

TUBE TURNS (Inc.), LOUISVILLE 1, KENTUCKY. *Branch Offices:* New York, Chicago, Philadelphia, Pittsburgh, Cleveland, Dayton, Washington, D. C., Houston, San Francisco, Seattle, Los Angeles.



POPULAR



Getting workers to wear safety equipment is a constant problem, especially on "semi-hazardous" jobs such as light grinding, woodworking and spot welding. The Willson Protecto-Shield meets this problem because it combines *new comfort* and *smart appearance* with day-long protection for both front and sides of face and forehead.

COMFORTABLE



Both men and women appreciate these comfort features. Light weight. Tilting visor "stays put" in any position. Plenty of room for spectacles. Clear plastic visor free from optical distortion.

PRACTICAL



Exclusive "Slot-Lock" holds visor securely in place. Can't be jarred loose. Easily replaceable. Three visor-lengths —4, 6 or 8 inch. Two thicknesses—.030 or .060 inch. Two colors—clear or green. Visor and sweatband easily replaceable.

For help on eye protection problems, consult your Willson Distributor or write for information to Dept. P-10.

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SQUARE FRAME WELDER

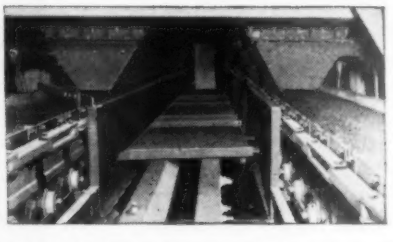


SQUARE frame welder with welding service range rating of from 60 to 375 amperes, has been introduced by the Harnischfeger Corp., Welding Div., Milwaukee, Wis. It is known as the WA-300, and is featured by two-part construction, single heat control, visual current calibration, weatherproof construction, polarity reversing switch, and removable stator.

SOLDERING IRONS BATTERY OPERATED

ELECTRIC soldering irons for operation off the batteries of trucks and planes, have been develpoed by the Hexacon Electric Co., 117 W. Clay Ave., Roselle Park, N. J. The Hexacon irons are available on rated orders of AA-5 or better, in 100 or 200 watt sizes wound for either 12 or 24 volts. The irons are sturdily built with damage-proof, hexagon-shaped barrels, and scale-resistant element cores.

SIDEKAR-KARRIER CONVEYOR



NEW Type of conveyor known as the Sidekar-Karrier, designed to handle bulk materials in a horizontal run-around path, within minimum headroom, is announced by Link-Belt Co., 307 No. Michigan Ave., Chicago, Ill. It provides conveyor storage for materials that are to be discharged simultaneously in varying quantities at a number of points. Surplus material in buckets after serving discharge points remains to be recirculated. Conveyor is self-feeding from any one of many feet spouts and self-discharging to any number of points. Buckets are supported on rollers. Two or more materials can be separately fed to the conveyor and admixture delivered to any predetermined discharge point in exactly the same mixed proportions as prevailed at the feed points. Two types available; Type 1 is recommended for boilerhouse applications. Types 1 and 2 are adapted to efficient handling of other bulk materials besides coal.

(*Continued on page* 120)

DUET

2 WAY CLEANING HARMONY!

Absorbs and Washes

LIKE A SPONGE

Cleans, Dries and Polishes

LIKE A CHAMOIS



No Other Cloth Like It!

Use WET DAMP or DRY

"Duet" can be used wherever a Sponge is used because of the amazing amount of water it holds. When wrung out tightly it can be used like a Chamois, for cleaning, drying and polishing. There is no other cloth even similar to "Duet". IT CANNOT UNRAVEL. A hidden stitch locks each and every thread through a secret process. The result is a dense surface that is extremely long wearing.

Ideal for heavy duty in industry. It is a great labor saver and consequently a money saver as well!

ANOTHER PRODUCT OF

AMERICAN SPONGE & CHAMOIS CO., Inc.

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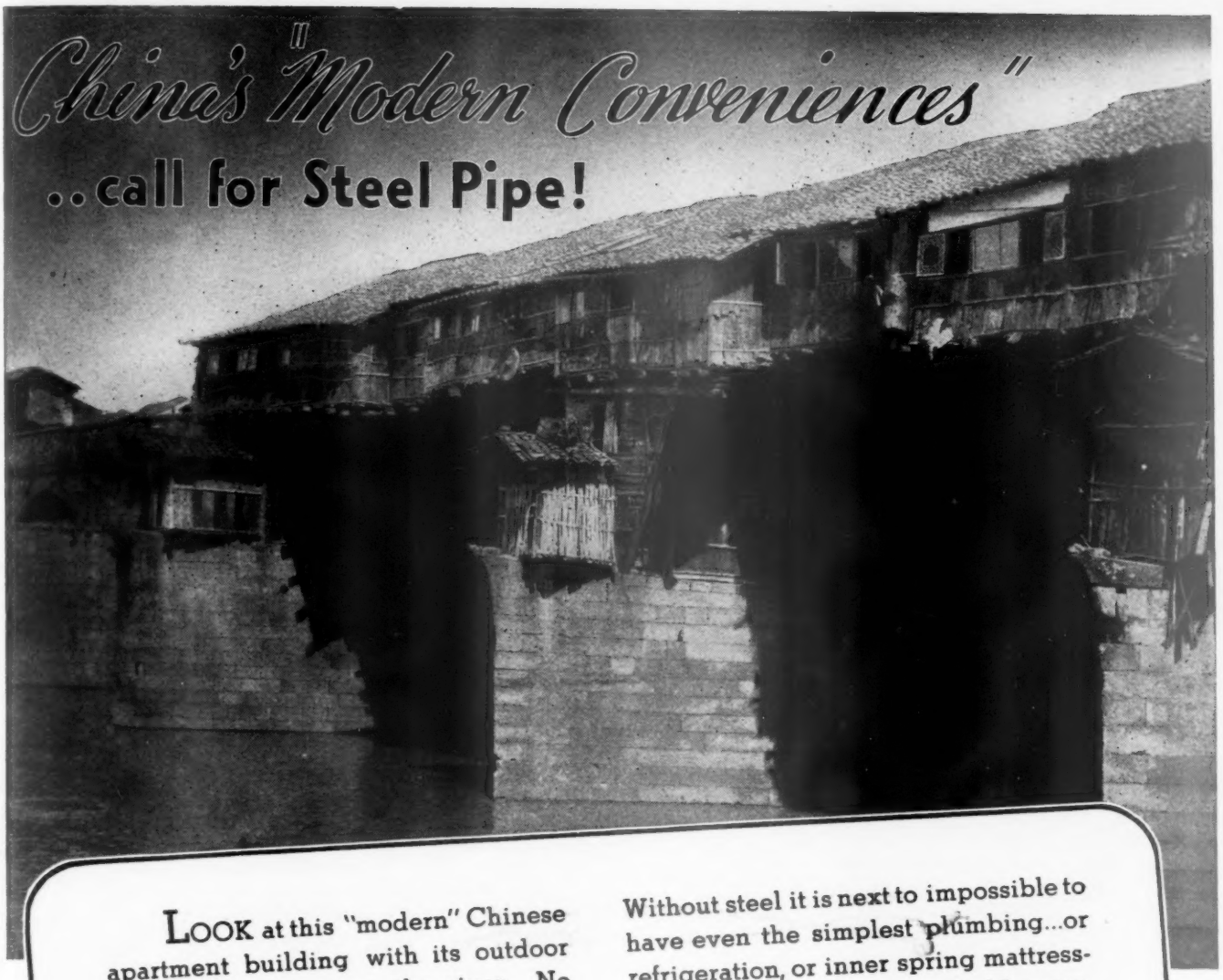
245 MISSION STREET, SAN FRANCISCO 5

Producers of

AMSCO CHAMOIS and MERMAID SPONGES

EST. 1869 DEMAND BY BRAND

China's "Modern Conveniences" ..call for Steel Pipe!



LOOK at this "modern" Chinese apartment building with its outdoor facilities overhanging the river. No doubt every bridge houses similar accommodations. And this same river may provide the water supply for all human needs--garbage disposal, laundry, bathing, drinking.

Oriental housing is so different that we call it "quaint" and "picturesque". We could truthfully describe it as "inconvenient", "uncomfortable", "unsanitary"

Why do the people of the East endure this? Do they prefer to drink unclean water, to wash and bathe in primitive ways?

No, of course, not. You know the answer. Their backwardness is due in large part to lack of steel. Without steel it is next to impossible to have even the simplest plumbing...or refrigeration, or inner spring mattresses, or scores of other household accessories that help make living in America a joy instead of a burden.

America's well-being depends on steel. When war's demand is ended, there will be steel enough for present American homes to be modernized and new ones built...with modern conveniences never even known before.

One way in which we Americans can contribute to lasting peace is to help other peoples of the world to appreciate and enjoy the high standards of living that steel makes possible.

QUALITY YOUNGSTOWN SERVICE

YOUNGSTOWN

THE YOUNGSTOWN SHEET AND TUBE COMPANY

YOUNGSTOWN, OHIO

Manufacturers of

CARBON - ALLOY AND YOLOY STEELS

Pipe and Tubular Products - Sheets - Plates - Conduit-Bars-Coke Tin Plate-Electrolytic Tin Plate-Rods-Wire-Nails-Tie Plates and Spikes.



Make sure you don't put your post-war retooling investment into "white elephants"...

Tool up with low-cost, flexible

Delta-Milwaukee Machine Tools

You maintain volume and quality... with big savings—yet stay adaptable to the uncertainties that lie ahead

Delta's conception of tool design provides you with a safe, flexible approach to post-war retooling. It eliminates the necessity for tying up heavy capital in costly, cumbersome, special machines of limited usefulness that are slow to build and that may become obsolete with the next change in product design.

By adopting this modern tooling practice — proven sound in war production, you can build high-production machines to do specific jobs, using low-cost, stock model Delta elements which are readily convertible when requirements change.

You can salvage your present machines which are approaching obsolescence, by replacing worn units with standard Delta components.

And, by taking advantage of the portability and compactness of Delta machines, you can quickly revise production line layouts to get increased man-hour output.

Low-cost Delta units and the ingenuity of your engineers form a workable combination to solve your production problems. Delta's savings in cost, weight, and space are not made at the expense of quality, but are due to advanced design and modern production methods applied to a large volume of standard models.

Cut your investment risk in post-war retooling. Save money . . . stay adaptable — with Delta-Milwaukee Machine Tools, in units, batteries, and special set-ups.

MA-18

Delta's 76-page Blue Book

provides 140 case histories of valuable war production experience that may suggest similar money-saving peacetime applications in your plant. Also available is a catalog of low-cost Delta-Milwaukee Machine Tools. Request both, using coupon below.

Tear out coupon and mail today!



THE DELTA MANUFACTURING CO.
712G E. Vienna Ave., Milwaukee 1, Wisconsin

Please send my free copies of Delta's 76-page Blue Book and catalog of low-cost machine tools.

Name.....

Position.....

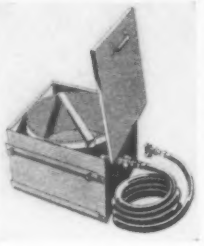
Company.....

Address.....

City.....(.....) State.....

An example of the flexibility and wide application of standard Delta parts is this special Delta Drill Press set-up, for extremely accurate slicing of thin wafers of quartz crystals used in communications instruments. A Delta 14" drill press head — to which an abrasive wheel is attached — is pivot-mounted on its side and power fed by a hydraulic cylinder. A Delta compound slide rest on the base of the drill press allows the entire table to be moved in two directions so that the crystal can be placed to get the proper cut.

PARTS CLEANER AND SOLVENT



SMALL parts cleaning system known as Model P-72 and new line of cold cleaning solvents called Agitene, are announced by Gray-Mills Co., 1948 Ridge Ave., Evanston, Ill. The P-72 has time-saving Air-gitator which provides air agitation of the (cold) solvent, swisher basket and platfrom, hinged cover, air hose. Size is 15½" x 15½" x 11½". It is equpiped with mounting brackets. Agitene cleaning solvents come in there types—Regular, general purpose; Super, fast-acting solvent for removing grease, tar and sludge; and Speed, for hard accumulations, gums and grease deposits.

PRINTED TRANSPARENT CELLOPHANE TAPE

LINE of printed transparent Filmonize cellophane tape is available without priority ratings to users engaged in war industries from International Plastic Corp., Morristown, N. J. Tape is said to have high tensile strength. Message may be printed in one line on tape ½" x 2592"; in two lines on tape ¾" x 2592", or three lines on tape 1" x 2592". Label may be either 1", 1½", 2", 3" or 4" in length including space for tear-off between labels. Rolls fit standard dispensers.

BLACK LIGHT LAMPS

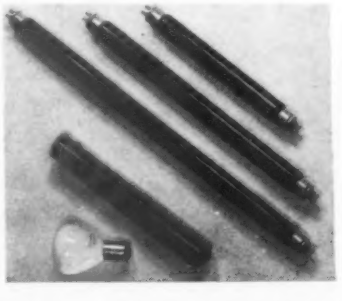


ILLUSTRATION shows black light lamps for industrial, aircraft and marine instrument illumination and other applications being marketed by Sylvania Electric Products, Inc., Salem, Mass., for operation on 120 volt ac and 24-28 volt dc circuits. The near ultra-violet RP 12, rated at 4 watts, is desinged for use with a visible light filter where a light-weight, compact lamp is required. It is equipped with a polarized bayonet base and may be operated in any position. Red-purple series tubular lamps require no visible light filter and operate with standard fluorescent lamp accessories on 120 volt ac circuits. They are supplied with miniature bi-pin bases in five sizes ranging from the 6" T5 rated at 4 watts to the 36" T8 rated at 30 watts.

(*Continued on page* 122)

If you make it of WIRE make it of the best!

PIPE cleaner wire is only one of several hundred special and distinct *types* of steel wire we produce for manufacturing purposes.

From these many different wires, more than 160,000 different products are being produced. Some are simple, others highly complicated, but all are essential to modern living.

We manufacture wire into most any shape, round — flat — square — oval — hexagon, with quality to meet the most exacting specifications. Regardless of the need or the problem, the experience and facilities of this organization are ready to assist you in your future WIRE requirements.

American Steel & Wire Company
Cleveland, Chicago and New York
Columbia Steel Company
San Francisco
United States Steel Export Company, New York
UNITED STATES STEEL



ROLL ON ABBOTT Bearing BALLS



UNINTERRUPTED PERFORMANCE

A better, more thorough proving ground for bearing balls would be difficult to find than the critical requirements of war-time . . . ABBOTT BEARING BALLS are making an enviable record of accuracy in manufacture, stamina to withstand grueling loads, and performance — "Uninterrupted" performance. Light intricate mechanisms or heavy duty assemblies ABBOTT will "carry the load as planned".

Also Balls of Bronze, Stainless Steel and other metals . .



SPECIFY **"ABBOTT"** *and be sure*

ROLL ON ABBOTT Bearing BALLS
THE ABBOTT BALL COMPANY HARTFORD 10, CONN. U.S.A.

STEEL FOUNDRY FLASKS

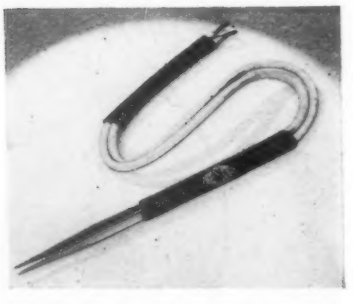


HEAVY-duty, welded steel foundry flasks are announced by Algona Products 3080 E. Outer Drive, Detroit, Mich. Fabricated from hot-rolled steel, the flasks are heat-treated after welding to normalize construction and to insure equal stress. They are designed to be installed with straight or cut-to-pattern flash bars according to specifications. Printed matter available.

FAST ACTING PORTABLE FIRE EXTINGUISHER

NEW fast-acting portable fire extinguisher, known as Alfite Speedex, is announced by American - La - France-Foamite Corp., Elmira, N. Y. It is made in 3 sizes—Models 15, 10, and 4, and uses carbon dioxide as the fire extinguishing agent. Numbers indicate the pound capacity of the gas. Approved by Underwriters and Factory Mutual Laboratories. Models 4 and 15 also carry the approval of the U. S. Coast Guard.

SPOT WELDING TWEEZERS



THIS is the Besco spot welding tweezer which makes it possible to unite tiny elements of a product by probing for the parts, bending and holding them and welding. The Besco unit hooks onto present spot welding equipment. It was developed originally to weld radio tube wires .003" OD. Electrodes are applied directly to the elements to be joined. They operate on from ½ to 1 KVA on 10 Amp current, and are used with a timer which cuts the current and times the length of the weld. Manufacturer states they are ideal for quick successive welds on one product where space is limited. As many as 4,000 welds per hour have been obtained. They will unite copper parts, nickel, steel, tin, tin alloys, brass, monel, nickel to tungsten and copper to nickel. New Jersey Jewelers Supply House, 280 Plane St., Newark, N. J.

(*Continued on page* 124)

NEW! The EDWARD Intex UNIVALVE*

Newest addition to the Edward steel valve line, the Univalve is a forged steel globe valve for service to 1500 lb at 950 F. Body and bonnet are a single unit, the seat is integral with the body, and the inclined stem design and streamlined flow contours cut pressure drop to from 25% to 50% of that of most forged steel globe valves.

All the distinctive standard features of Edward valve construction are included—oversize knobbed handwheel, extra-deep stuffing box and cooling chamber, re-enforced EValpak molded packing, junk ring EValized for abrasion resistance, centerless ground EValloy stem—with the addition of many new features that make the Edward Univalve the best buy possible for high temperature, high pressure service.

**Integral seat valve with body and bonnet a single unit.*



1 WELDED BONNET

Patented leakproof welded body-bonnet joint, with backseating joint for repacking under pressure, and designed for disassembly if ever necessary.

2 INTEGRAL hard-faced SEAT

A continuous ring of Stellite applied directly to the body, machined in the same set-up with body bore for perfect alignment, and carefully mated to disk for full bearing area.

3 HARD FACED DISK

Heavy layer of ground and lapped Stellite on alloy steel disk.

4 BOLTED GLAND

Easy packing adjustment, with through-bolted, accurately guided gland.

5 BRONZE YOKE BUSHING

Minimizes wear and prevents galling.

6 ONE PIECE, Integral YOKE BONNET

Perfect alignment of working parts.

7 LOW PRESSURE-DROP FLOW

Edward inclined stem globe valve construction eliminates sudden changes of flow, reduces erosion-producing turbulence, and cuts pressure drop to minimum, yet retains desirable characteristic of globe valve tightness.

UNIVALVE SIZE RANGE
1500 lb —950 F

Screwed Ends
Fig. 2220—½", ¾"
Fig. 3220—¾", 1", 1½", 2"

Socket Welding Ends
Fig. 2224—½", ¾"
Fig. 3224—¾", 1", 1½", 2"

EDWARD *Steel* VALVES

The Edward Valve & Manufacturing Co., Inc. • East Chicago, Indiana

Stanley Steel Strapping Delivers the Goods Safely



Ready for Shipment with

SAFETY BANDS OF STEEL

Ready for any destination, these heavy-weight reels of insulated wire have every possibility of arriving in fine shape—snugly and safely banded with Stanley Steel Strapping.

Stanley Steel Strapping methods have given a new, streamlined lightness to containers and wrappings—a new speed and economy to shipping departments—and an added assurance that shipments will arrive undamaged at their destinations. And what this system has done for other shippers, it can also do for you.

Whether you ship by reel, bale, case, crate or carton – investigate these modern weight, bulk and time-saving methods. Sturdy steel strapping and all necessary tools, seals and accessories for quick and dependable application are quality-made by Stanley. The Stanley Works, Steel Strapping Division, New Britain, Connecticut.

STANLEY

STEEL STRAPPING AND CAR BANDING SYSTEMS

MEET ALL FEDERAL STRAPPING SPECIFICATIONS

FOUR NEW FACE SHIELDS



FOUR new face shields which provide light-duty protection on operations such as metal swing, acid handling, buffing, sanding and light grinding are announced by the American Optical Co., Southbridge, Mass. Also announced are three types of button-on windows for the shields: clear cellulose acetate for general purposes; 24 mesh screen for heat protection; and fibre with a filter glass window for welding and scarfing. They may be worn without discomfort by workers who wear prescription glasses. All parts are interchangeable. Numbers are AO F-100, F-200, F-300 and F-400. Latter has semi-skull guard.

NEW ALL POSITION WELDING ELECTRODE

NEW shielded arc electrode for general purpose welding of mild steel which is said to offer number of outstanding advantages over existing electrodes of same classification is announced by the Lincoln Electric Co., Cleveland, Ohio. It is known as "Fleetweld 47", and offers such advantages as extremely low spatter loss, easy slag removal, and excellent re-striking characteristics. It conforms to AWS electrode specifications E-6012 and E-6013 and may be used with either alternating or direct current. It is available in following sizes: 5/32″ x 14″; 3/16″ x 14″; ¼″ x 18″, and 5/16″ x 18″.

INSULATED ELECTRODE HOLDER



NEW armor-clad (screw type), fully insulated electrode holder is announced by the Electric Welding Division of the General Electric Co., Schenectady, N. Y. Designed from the operator's viewpoint, the new holder is recommended for use wherever durability, maximum safety, and minimum operator fatigue are desired. Head is completely enclosed in a sheath of aluminum armor. This protects the insulation, resists weld spatter and eliminates the possibility of accidental contact with the welding circuit. It is designed to accommodate electrodes up to and including ¼″ in diameter. It is light in weight (15 oz.) and unusually cool in operation.

(*Continued on page* 126)

TWO THREADS ARE BETTER THAN ONE!

Twin-Fast's twin parallel threads (which spiral root from opposite sides) greatly increase thread pitch —cut driving time in half!

Although the Twin-Fast Screw is standard in size and number of threads per inch, the exclusive twin thread construction gives it twice the thread pitch of ordinary wood screws! A single turn of the driver sends twice as much thread area into the material. What's more, the twin threads provide balanced construction for greater strength. Whereas, in the ordinary asymmetrical screw, each thread is opposed by a groove, in Twin-Fast Screws the parallel threads lie opposite each other.

You pay no more for Twin-Fast's exclusive features. Write for samples and illustrated folder *today*.

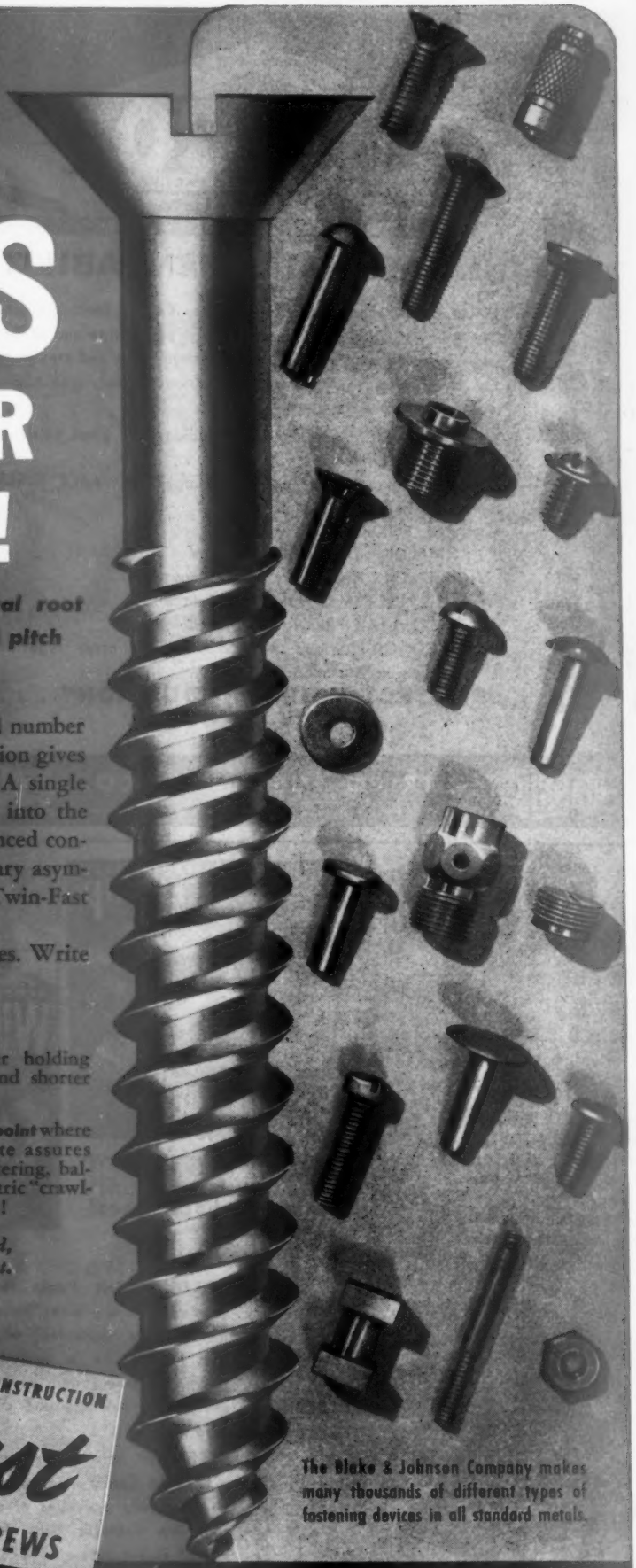
OTHER TWIN-FAST FEATURES

Relieved shank diameter tends to prevent stresses which might cause immediate or eventual splitting or fissures. Method of manufacture assures perfect shank uniformity—perfect fit.

Cylindrical construction (not tapered) increases thread area for tighter seating, greater holding power. Often, fewer and shorter screws may be used.

Single, sharp, centered point where twin threads terminate assures quick starting, self-centering, balanced driving. No eccentric "crawling"—no misalignment!

Twin-Fast Screws come in steel or brass with round, flat, or oval heads—standard sizes and thread count.



FOR FASTER PRODUCTION—STRONGER CONSTRUCTION

TWIN fast

REG. U.S. PAT. OFF.

TWIN THREAD WOOD SCREWS

OTHER PATS. PENDING

BY ALL MEANS BUY BONDS!

The Blake & Johnson Company makes many thousands of different types of fastening devices in all standard metals.

THE BLAKE & JOHNSON COMPANY SINCE 1849

WATERVILLE, CONNECTICUT

TRICO
REG. U. S. PAT. OFF.
"BEST AT THE END OF ANY TEST"

QUALITY and DEPENDABILITY

Industry's widespread preference for TRICO Electrical and Oiling Devices is the result of proven dependability and skilled engineering to assure lowest maintenance costs and maximum protection against unnecessary shutdowns, lost man-hours, replacements and repairs.

Write today for the handy buying guide that gives valuable and helpful information on TRICO . . .

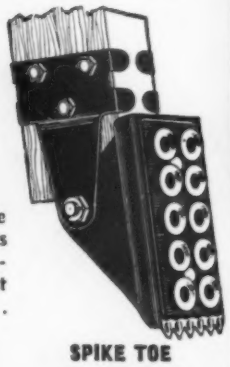
TRICO "Powder-Packed" Time Lag RENEWABLE FUSES
"KANTARK" One-Time Fuses
"COLORTOP" Plug Fuses
"KLIPLOK" Clamps for fuse clips
"KLIPLOK" Heavy-duty Test Clamps
FUSE PULLERS for safely handling fuses
TRICO LEAK-PROOF AIR GUNS
TRICO OILERS and ACCESSORIES for every type of bearing surface.

"PROTECT YOUR PRODUCTION" . . .
BUY TRICO!

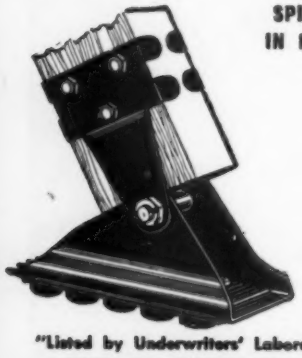
TRICO FUSE MFG. CO.
Milwaukee Wisconsin
FUSES

DAYTON SAFETY LADDER SHOES

FIT ANY STANDARD LADDER RAILS
Shoe or base is made of # 16 gauge and the side plates are of # 13 gauge steel. Suction grip treads are renewable. Lock nuts and spring washers insure proper adjustment Easy to install. . . .



SPIKE TOE IN POSITION



RUBBER TREAD IN POSITION

"Listed by Underwriters' Laboratories Inc."
WRITE FOR BULLETIN NO. 4 TODAY
DAYTON SAFETY LADDER CO.
2337 Gilbert Ave., Cincinnati 6, Ohio



Prompt deliveries



both types!

WIREGRIP Belt Hooks that can be applied with any make lacing machines, have double (patented) aligning cards that hold hooks in perfect alignment, prevent handling and card-end loss — every hook saleable and usable. Made in 6 sizes.

STEELGRIP Belt Lacing is applied with a hammer. Comes in 11 sizes, in standard boxes, handy packages or long lengths for wide conveyor belts. Have 2-piece hinged rocker pins.

Write for Catalog

ARMSTRONG-BRAY & CO.
"The Belt Lacing People"
5378 Northwest Highway, Chicago 30, U.S.A.

SAFETY OILY WASTE CAN

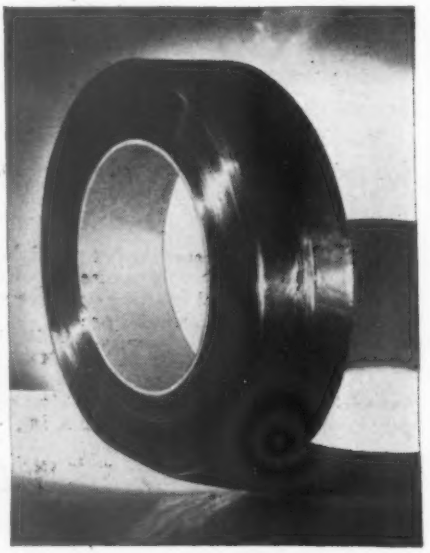


GALVANIZED steel Oily Waste Can that provides safe, simple storage of oily waste and other inflammable materials is being marketed by the Rochester Can Co., Rochester, N. Y. Top is weighted to insure gravity closing and tight fit. Can has full length body which provides firm base, and air vents in the body between bottom of the container and the floor allow good air circulation; also foot-operated opening mechanism.

ANNOUNCE PALMETTO PLAITED PACKING

GENERAL utility lubricated centrifugal pump packing known as Palmetto Plaited Packing, is announced by Greene, Tweed & Co., Bronx Blvd. at 238th St., New York, Long fibre asbestos yarn enabels use of packing with hot water. Lubricant is Palmetto graphite grease. Packing is plaited in square form and is made in variety of sizes.

CELLOPHANE TUBING REELS



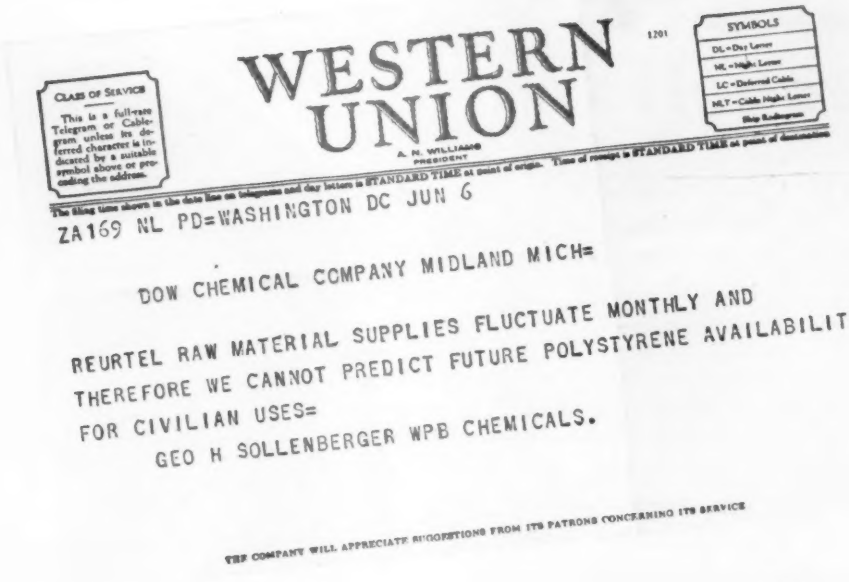
REELS of cellophane tubing in 1000 foot lengths for bags and containers have been introduced by the Traver Corp., 358 W. Ontaraio St., Chicago, Ill. The tubing comes in four widths: 3", 4", 6" and 8". It consists of clear cellophane laminated over red cellophane for Methods I and I-A, Type III packaging of military parts. By cutting the required lengths from the available widths, bags and containers may be made for rods or shafts, bearings, gauges, pumps, gears, rifles and other hunitions and replacement parts. Ends may be heat-sealed. The wrapping is waterproof and greaseproof.

(*Continued on page* 130)



you've heard the rumors . . .

Dow gives you the facts on Polystyrene supply



Contrary to many rumors, polystyrene is *not* freely available. We wish it were. Apparently you do too.

WPB is working with every polystyrene producer and supplier to make the most material available to *everyone* as soon as possible. But military needs—which still come first—must be balanced against supply of benzene and production capacity.

These factors are uncertain, changing—one thing today, different tomorrow. As the Nation's largest producer of polystyrene, we'd like to be more specific—but obviously can't. You can be sure that we're doing everything possible to meet your needs and anticipate your growing demands: spreading the benefits of *every available pound of polystyrene* to help keep the nation's employment at the highest level.

THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

New York • Boston • Philadelphia • Washington • Cleveland • Detroit • Chicago
St. Louis • Houston • San Francisco • Los Angeles • Seattle



don't put your molder on the spot ● When you talk to your molder about polystyrene —REMEMBER—war still creates shortages beyond his control. He's working with us—and will be ready to serve your full *peacetime* needs at the earliest possible moment. "Let's Work It Out Together!"

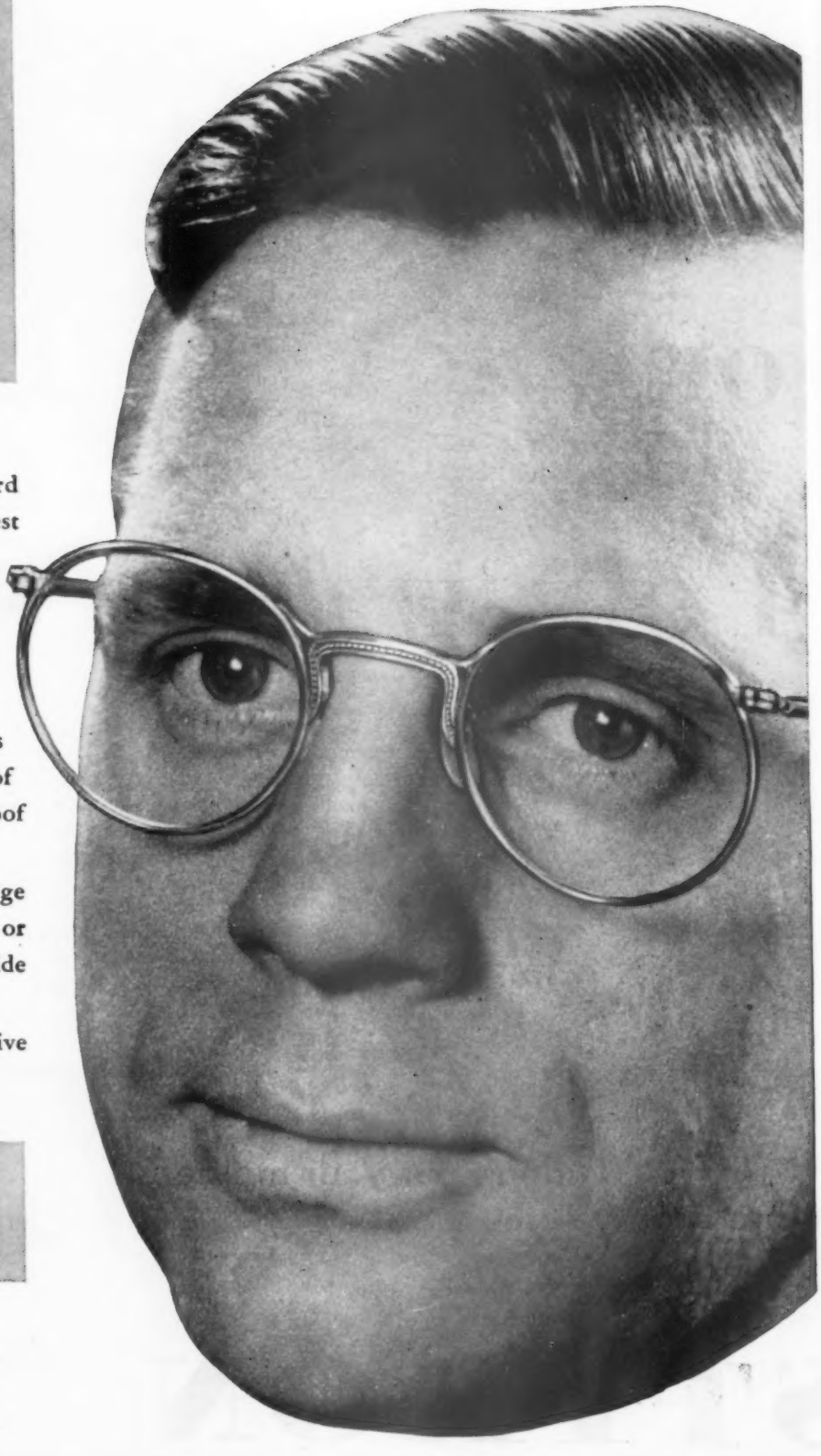
STYRON
(DOW POLYSTYRENE)

DOW
PLASTICS

STYRON • ETHOCEL • ETHOCEL SHEETING
SARAN • SARAN FILM • STYRALOY • STRIPCOAT

AO Ful-Vue Safety Goggles

Eye Protection plus Comfort and Good Looks



AO Ful-Vue Safety Goggles afford efficient eye-protection with the greatest amount of all-angle visibility, comfort and good appearance. Sturdy, double-braced bridge designed for long life in strenuous service. Shape conforms to orbit of the eye; brings lenses closer for maximum protection; leaves no unprotected areas around bridge of nose. Earpieces have perspiration-proof insulation.

Made in three eye sizes and three bridge sizes, with Super Armorplate Clear or Calobar lenses—with or without side shields.

Your nearest AO Safety Representative can supply you.

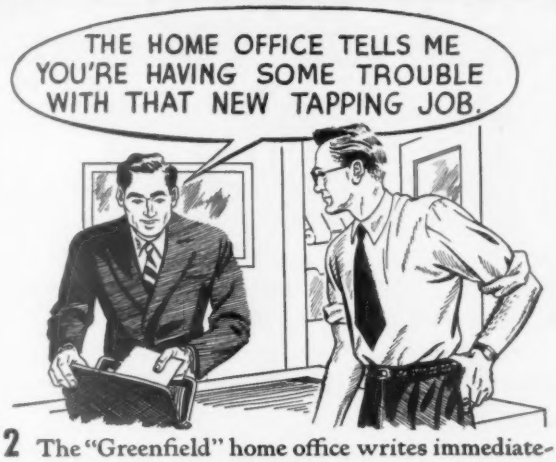
American Optical
COMPANY
SOUTHBRIDGE, MASSACHUSETTS

TAPPING TROUBLE? TYPICAL CASE SHOWS HOW ALERT "GREENFIELD MAN'S" QUICK SERVICE SOLVES PROBLEM

[A GTD SHOW-HOW REPORT]

1 A small southern plant, wrestling with new war order calling for close threading tolerances, was having trouble getting Class 3 fits. In re-ordering taps from "Greenfield," they mention problem in foot-note on the order, wondering if job calls for a "special" tap.





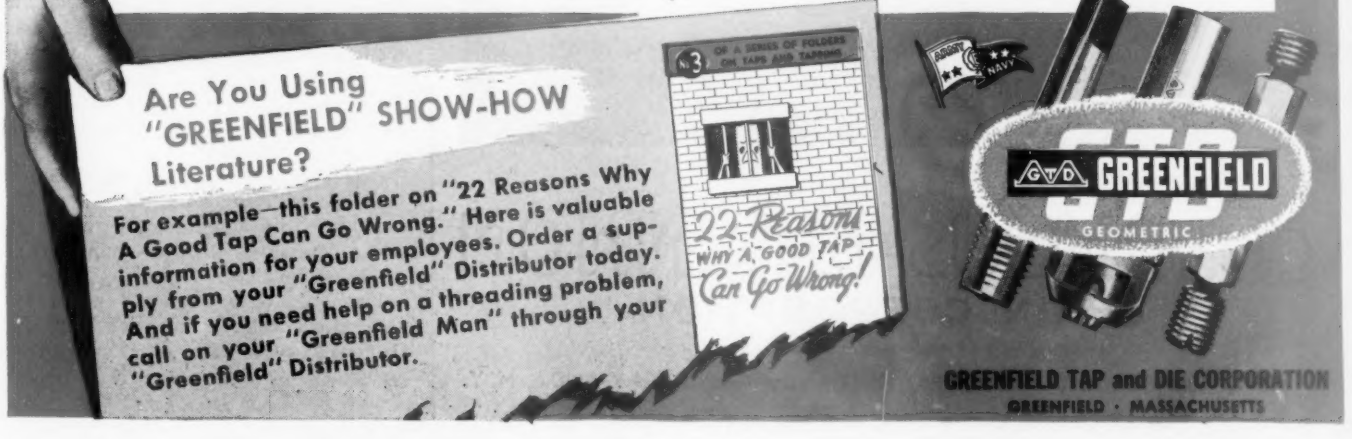
2 The "Greenfield" home office writes immediately for complete data needed to help customer with problem. Copy of correspondence automatically goes to "Greenfield Man" in customer's territory. "Greenfield Man," familiar with customer's tapping operation, suspects something other than the tap is causing the trouble. He visits plant immediately.

3 Customer shows him the tapping operation which is causing the trouble. "Greenfield Man," checking various factors which might affect accuracy, discovers tap and work are out of alignment, and suggests how to correct trouble.





4 Result . . . customer is able to get Class 3 fits with no difficulty and without the "special" taps he thought might be needed. His problem is solved —in a few days—thanks to alert, resourceful service from "Greenfield's" field organization.



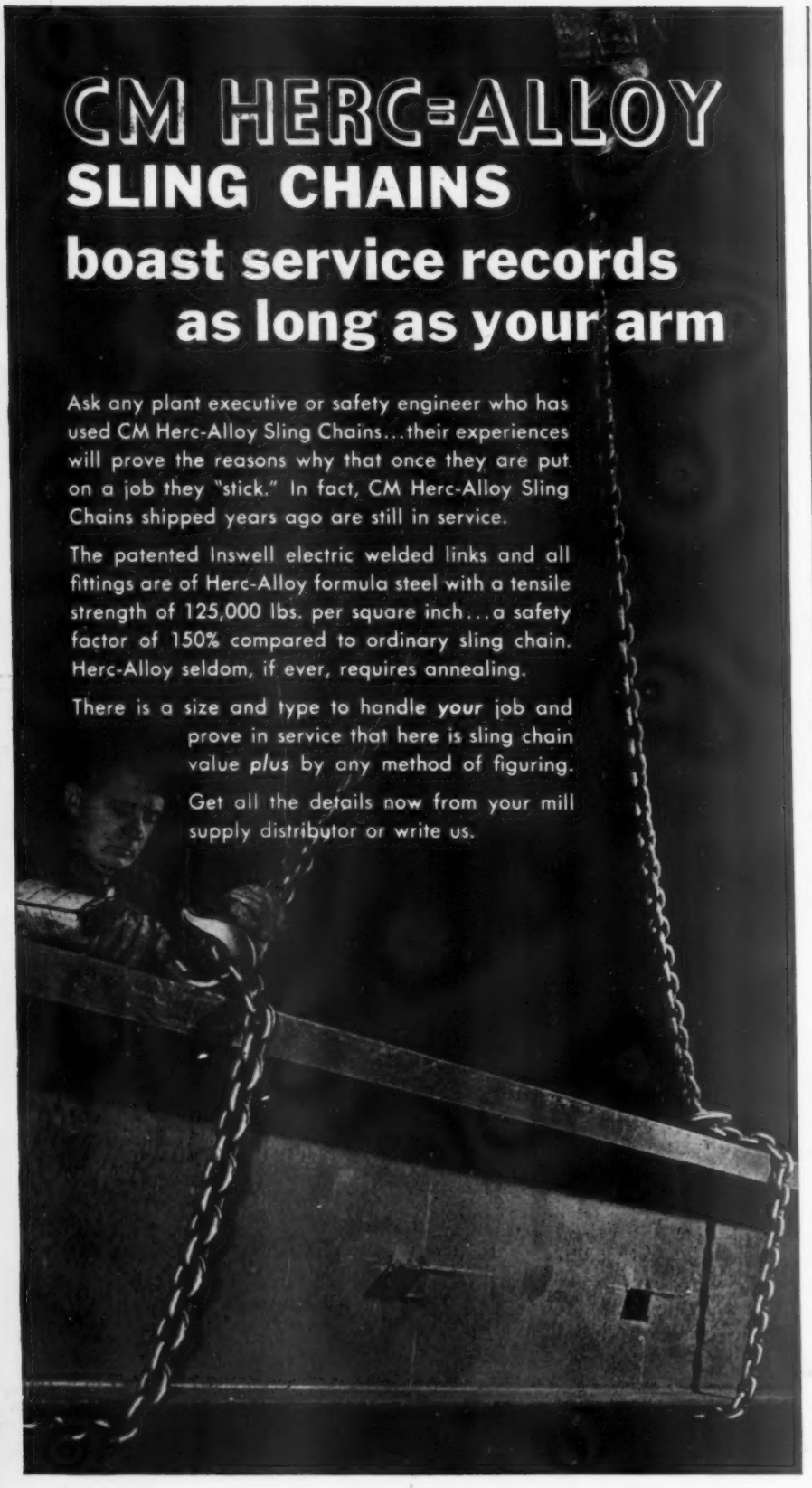
CM HERC-ALLOY SLING CHAINS boast service records as long as your arm

Ask any plant executive or safety engineer who has used CM Herc-Alloy Sling Chains...their experiences will prove the reasons why that once they are put on a job they "stick." In fact, CM Herc-Alloy Sling Chains shipped years ago are still in service.

The patented Inswell electric welded links and all fittings are of Herc-Alloy formula steel with a tensile strength of 125,000 lbs. per square inch...a safety factor of 150% compared to ordinary sling chain. Herc-Alloy seldom, if ever, requires annealing.

There is a size and type to handle *your* job and prove in service that here is sling chain value *plus* by any method of figuring.

Get all the details now from your mill supply distributor or write us.



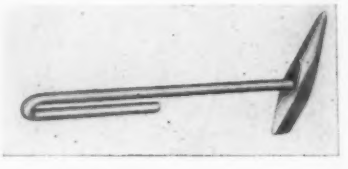
COLUMBUS-McKINNON
CHAIN CORPORATION
(Affiliated with Chisholm-Moore Hoist Corporation)
GENERAL OFFICES AND FACTORIES: 136 Fremont Ave., TONAWANDA, N. Y.
SALES OFFICES: New York, Chicago and Cleveland

SAFETY SPLICE



AMERICAN Chain & Cable Co., Inc., Bridgeport, Conn., announces the development of a new method for splicing wire rope into slings or various assemblies. Splice is flexible clear to the terminal, and is said to develop 100% of the rope's strength. Illustration shows the ACCO-Loc Safety Splice. It does not distort the rope structure, and maintains equalization of stresses in all strands. Splice may be used with any standard fitting. It is applied only at the factory.

WELDER'S CHIPPING HAMMER



WELDERS' chipping hammers with steel handles made of high grade 3/8" round steel and special hand grip to absorb shock, and to hook to welder's belt, are announced by Chicago Mfg. & Distributing Co., 1928 West 46th St., Chicago. Type E illustrated has a combination drift and chisel for general chipping. Type F has two chisels at right angles. Both types available with removable wire brush.

INFRA-RED OVENS

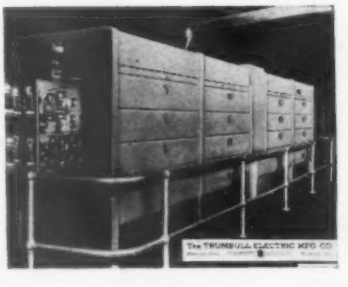


ILLUSTRATION shows "Raymersion prefabricated Infra-red ovens for high speed heating in low-temperature industrial service, announced by The Trumbull Electric Mfg. Co., Plainville, Conn. Prefabrication units are so standardized as to permit the widest range of utility in the size of the oven for any type of product, any heating capacity and any handling method. Temperatures as high as 500° F can be obtained, often in seconds, depending on type and mass of products involved. Combining the advantages of convection and zoned heat application, baking schedules are often reduced as much as 90%. Printed matter available.

(Continued on page 132)

Improved

QUICK-ATTACHABLE HOSE FITTINGS

Because Weatherhead quick-attachable (Q-A) hose fittings can be easily installed as either original equipment or replacement work, service-men and mechanics have stated overwhelming preference for them. They are available in two types for low pressure or for medium and medium-high pressure lines. Write or phone any Weatherhead branch office for our new Aviation Catalog. It's free!



CHECK THESE Q-A FITTING FEATURES:

1 No special tools required

2 Cuts installation time in half

3 They are re-usable on new assemblies

4 Fully AN approved

5 Can meet all pressure requirements

6 Adjustable to prevent seepage

Look Ahead with **Weatherhead**

THE WEATHERHEAD COMPANY, CLEVELAND 8, OHIO
Plants: Cleveland, Columbia City, Ind., Los Angeles, Canada—St. Thomas, Ontario

BRANCH OFFICES: NEW YORK • PHILADELPHIA • DETROIT • CHICAGO • ST. LOUIS • LOS ANGELES



This Army Ordnance Depot uses G-E automatic chargers to speed handling of ammunition for our armed forces.



AUTOMATIC CHARGING
OF ELECTRIC TRUCK BATTERIES
PAYS BIG DIVIDENDS

G-E Automatic Copper-oxide Battery Chargers are designed to meet the exacting charging requirements of large industrial electric truck batteries as well as the smaller requirements of batteries used in motorized hand trucks. Located in central charging stations or in truck working areas these trouble-free chargers offer astounding savings in POWER . . . TIME . . . LABOR.

HERE'S WHY

COMPLETELY AUTOMATIC—The truck operator merely sets a simple control and the charger "takes over." It delivers the charge then shuts itself off.

LOW INITIAL COST—Initial cost is low and quickly amortized by reduced power bills, maintenance and labor costs.

REDUCED POWER COST—G-E Copper-oxide Chargers operate at 70 per cent efficiency at full load, only slightly less at one-half load.

NEGLIGIBLE MAINTENANCE—The only moving part is the fan which needs lubrication once a year. Removal of dust from the copper-oxide stacks is the only other maintenance required.

HIGHLY FLEXIBLE—No costly special foundation, base or other installation equipment is needed. Chargers can be easily moved from place to place.

OCCUPY LITTLE SPACE—The G-E automatic charger occupies approximately three square feet of floor space and can be fitted into convenient unused spots.

NOON-HOUR BOOST—Installed in truck working areas the charger will give a "noon-hour" boost to batteries.

For further information, write to Section A753-77, Appliance and Merchandise Department, General Electric Co., Bridgeport, Conn. Ask for the new truck charger bulletin—Publication No. 52-46.

BUY WAR BONDS AND KEEP THEM



GENERAL ELECTRIC

LAMINATING WAX



NEW, light-colored laminating wax for use in producing moisture-resistant food containers, available without allocation, is announced by Witco Chemical Co., 435 N. Michigan Ave., Chicago, Ill. It is known as Witco Hamp Wax No. 62, and is described as a straight petroleum wax, non-resinous, with a melting point of 160-165 F. It is claimed to have excellent laminating properties for the production of food containers, paper boxes, and Grade "C" ordnance wrap.

METALLIC FLAME-PROOF COATING

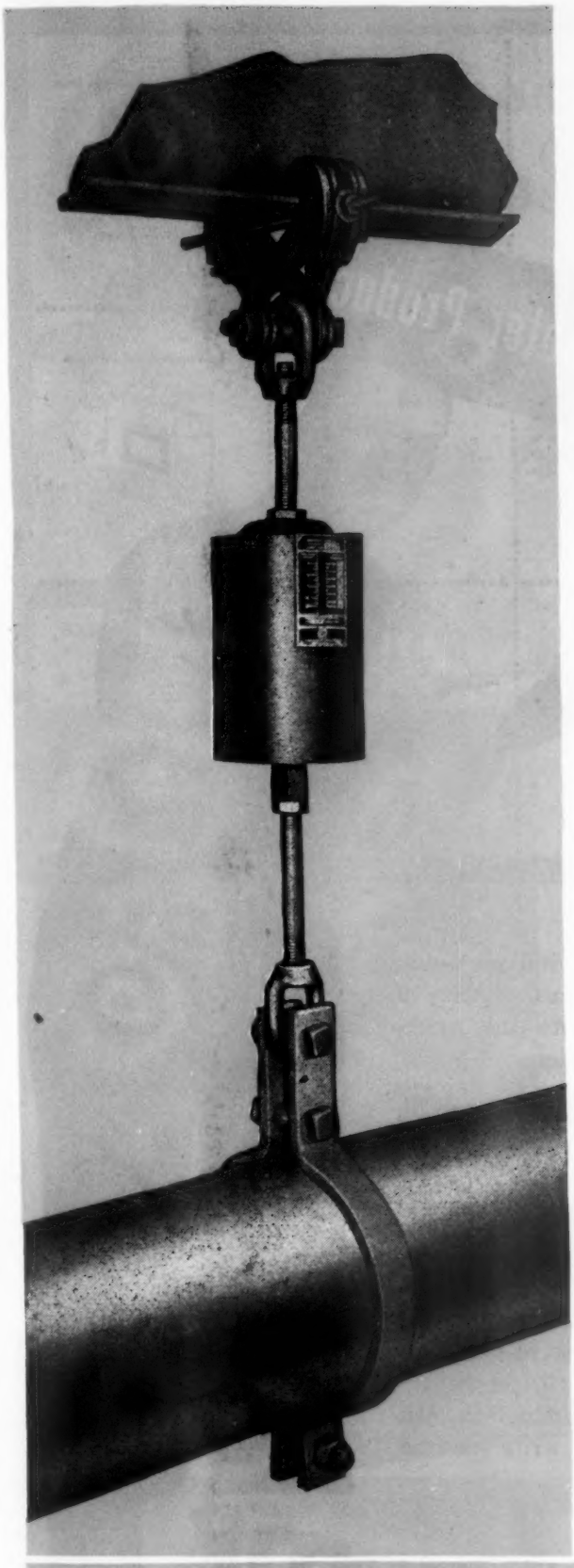
BRILLIANT, metallic flame-proof coating for application to surfaces subjected to high temperatures, and for all surfaces, hot or cold, where a non-flammable coating is needed as a fire-retardent, named Blaze-Pruf Silver-Lume, is announced by The Wilbur & Williams Co., Park Square Bldg., Boston, Mass. Manufacturer states it is unaffected by temperatures up to 1800° F.; non-flammable on direct blow-torch test; may be applied to hot or cold surfaces, and may be applied directly to glowing metal without flame hazard. Also, excellent fire retardent coating for wood and other surfaces.

INDEXING FIXTURE



A SHORT type indexing fixture intended to go under small milling machines and using only the standard 5-C pull type collet, is announced by the Zagar Tool Company, Cleveland 15, Ohio. The fixture is said to be a time-saver, since it eliminates the set-ups required to index work around 360° of a circle. It has the ability to index any number of positions from 2 to 25 stations. A 4-, 6-, and 8-division index plate is included in standard equipment. All others are extra. The body-and-base is a tough alloy casting and the collet bushing is of alloy tool steel. Both are ground to close dimensions.

(*Continued on page* 136)



Save Engineering Time

WITH GRINNELL *Pre-Engineered* SPRING HANGERS

1. Compute the load
2. Select the required stock size

When spring hangers for modern flexibly supported piping systems are "tailor-made" for each load condition, a lot of scarce engineering and drafting man-hours are required in designing. The Grinnell Spring Hanger will save this time – it is "pre-engineered for the job." The capacity you need is conveniently "packaged" – one of 14 stock sizes.

12½% MAXIMUM CHANGE IN SUPPORTING FORCE OF SPRING IN ½" VERTICAL TRAVEL--IN ALL SIZES

GUIDES PREVENT CONTACT OF COILS WITH CASING WALL OR HANGER ROD AND ASSURE CONTINUOUS ALIGNMENT AND CONCENTRIC LOADING OF SPRING

COMPACT—REQUIRES MINIMUM HEADROOM

ALL-STEEL WELDED CONSTRUCTION MEETS PRESSURE PIPING CODE

14 SIZES AVAILABLE FROM STOCK--LOAD RANGE FROM 84 LBS. TO 4700 LBS.

EASY SELECTION OF PROPER SIZES FROM SIMPLE CAPACITY TABLE

INSTALLATION IS SIMPLIFIED BY INTEGRAL LOAD SCALE AND TRAVEL INDICATORS

UNIQUE SWIVEL COUPLING PROVIDES ADJUSTMENT AND ELIMINATES TURNBUCKLE

Write for descriptive folder on Fig. 268 Pre-Engineered Spring Hangers.

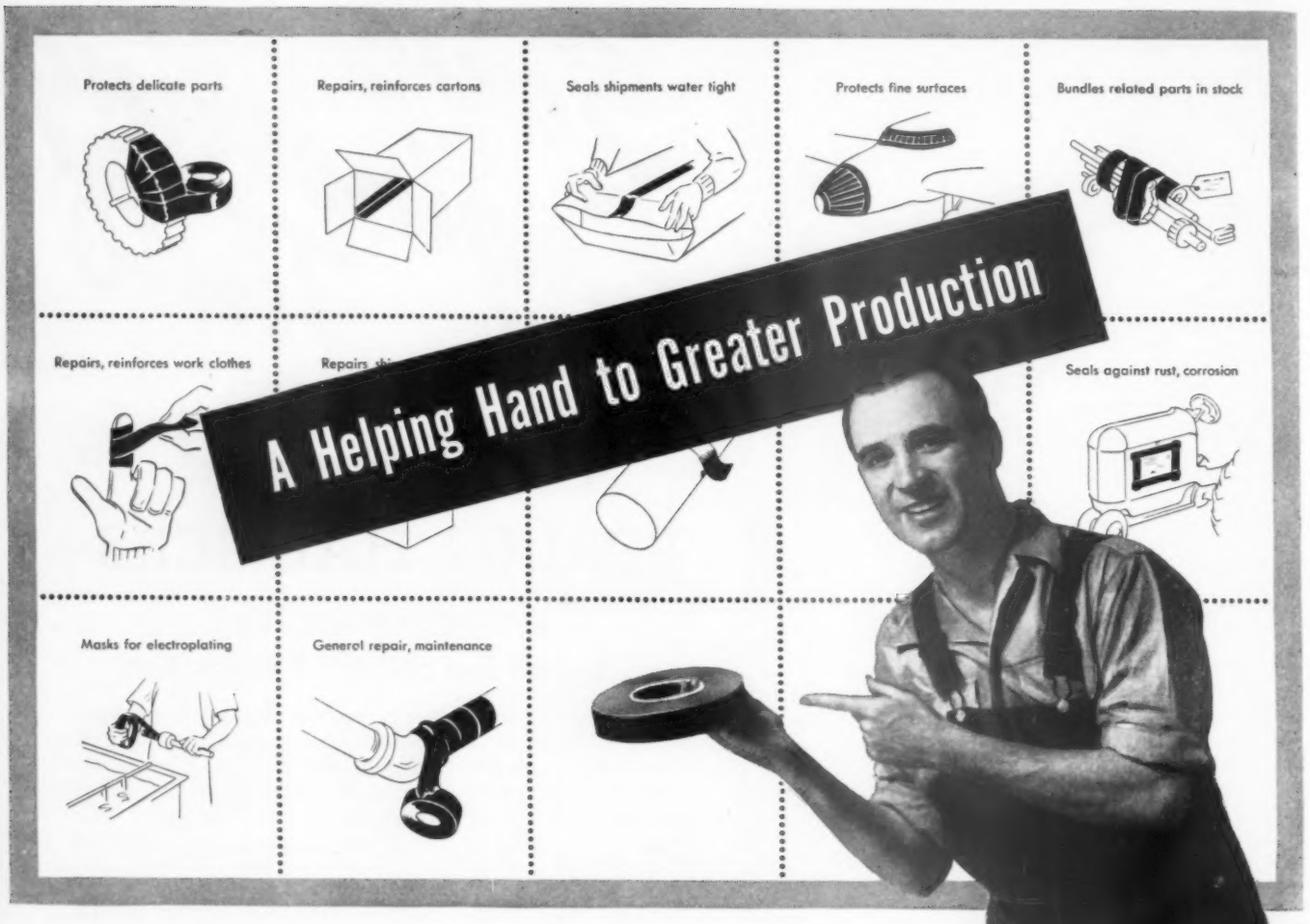
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Executive Offices: Providence 1, R. I.

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GRINNELL

WHENEVER **PIPING** IS INVOLVED



"WHEN I NEED A HELPING HAND, next best thing to being twins is having a roll of MYSTIK TAPE handy. Here on the production line, a hundred times a day, MYSTIK 'steps in' and holds things for me—holds loose parts in place, holds assemblies together temporarily—leaving both my hands free to work."

Yes, MYSTIK performs thousands of holding operations on production lines everywhere . . . helping workers turn out more production faster. And this is just one chapter of the MYSTIK story. This powerful "self-stik" cloth tape, war-proved in tremendous quantities on every front, has become a vital *new industrial tool* . . . performs all sorts of holding, sealing, protecting, masking, repairing operations.

MYSTIK is tough, waterproof, fungicide-treated tape. With its powerful "self-stik" adhesive—developed a decade ago—it goes on instantly, holds tight, zips off clean.

If MYSTIK TAPE isn't working in your plant, better give it a try right now. MYSTIK will find plenty to do *in every department*, cutting costs, saving time, speeding production. Ask your distributor, or write for free offer below *now*.



***FREE**—A generous trial sample roll of MYSTIK Self-Stik CLOTH TAPE and literature full of production-wise ideas. Write—Mystik Adhesive Products, 2634 N. Kildare, Chicago 39.*

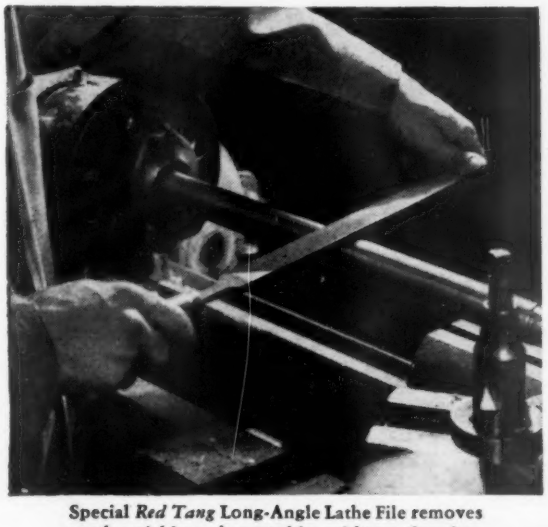
MYSTIK
Self-Stik
ADHESIVE PRODUCTS

Self-Stik Cloth and Paper Tapes, Protective and Masking Materials, Waterproof Packaging Papers, Advertising Signs and Displays, Self-Stik Stencils



"Takes me a Lot Less Work to get More Work Done...

(Color on the Tang is Trademarked)



Special *Red Tang* Long-Angle Lathe File removes stock quickly and smoothly, without clogging.

...with SIMONDS RED-TANG FILES"

Workers like *Red Tang* Files because they can remove more stock with less elbow-grease. And management likes them because they stay sharp and last longer, giving more "file-mileage" per dollar. *Red Tang* Files cut (instead of scrape) with teeth designed like the teeth of a Simonds metal-cutting saw . . . curl up long, even chips.

Made under ideal conditions in the world's first windowless plant, Simonds *Red Tang* Files come in only one quality . . . the highest standard to which *any* file can be made. So next time you need standard files, tell your dealer specifically to send you Simonds *Red Tang*. *Then measure the extra value you get.*

BRANCH OFFICES: 1350 Columbia Road, Boston 27, Mass.; 127 S. Green St., Chicago 7, Ill.; 228 First St., San Francisco 5, Calif.; 311 S. W. First Ave., Portland 4, Ore.; 31 W. Trent Ave., Spokane 8, Wash.



PRODUCTION TOOLS FOR CUTTING METAL, WOOD, PAPER, PLASTICS

SIMONDS SAW AND STEEL CO.
FITCHBURG, MASSACHUSETTS

CUT THE WAR SHORT... BUY WAR BONDS... AND THEN BUY MORE WAR BONDS



● This gentleman, *Mr. Fillet Weld,* is not exactly a philanthropist, but he practically hands out cold cash to plant managers who know him real well. He saves . . .

for these reasons:

1. Longer-lasting—the Fillet Weld and Hex Bar construction of BATES • GRATES assures longer-lasting, more durable open steel flooring and stair treads. That's economy, and economy means *savings.*

2. Safer—the combination of Hex Bars and Fillet Welding produces safer grating—and, safety is a big *economy* factor.

3. Lower upkeep costs are made possible by the Fillet Welded Hex Bars. They shed dirt, grease and water—take much less time to keep clean.



Get a bid from BATES on every job where you need GRATES



KIDDE FIRE-SAFETY SWITCH

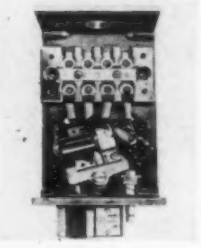


ILLUSTRATION shows Kidde pressure switch, an accessory device for use with built-in carbon dioxide fire extinguishing systems. It assists in isolating the fire by automatically cutting off electrical circuits in fans, blowers or other electrical equipment when the extinguishing system works. The device is available for control of two, three or four circuits, each of which may be wired for normally open or normally closed operation. It is provided with a manual reset to restore circuits to their original position after operating due to fire.

MAKES PARTS WITH INSERTS

NEW powder-metals press for high speed production, up to 45 strokes per minute in automatic operation, and to operate also as a start-stop press in making parts with inserts, is announced by F. J. Stokes Machine Co., Philadelphia 20, Pa. It is known as the G-2 press. It is of 12 tons capacity. It is recommended for making small machine parts such as gears, splined bushings, carbide tool bits and drawing dies, carbon brushes, brushes with pig-tails and iron cores with threaded shafts molded in place. Press is powered by a 5 hp variable speed drive. Maxmium die fill 4"; maximum size piece is 1½", diameter or equivalent area.

SELF-LUBRICATING BEARINGS



ILLUSTRATION shows Morganite self-lubricating bearings, product of Morganite Brush Co., Long Island City 1, N. Y. They are available in compositions of carbon, graphite, or both. Manufacturer says they are immune to acids, alkalis and most solvents, and have low coefficients of friction and expansion. They are readily machineable but may be molded with tolerances to .001 inch. Outside diameters of ⅛" to 15" are permissible. They may be supplied in any shape. Operating speeds to 50,000 RPM with thrust loads to 30 PSI or loads to 2000 PSI at slower speeds are possible. Manufacturer states warpage and change of shape are practically non-existing factors. Immunity to high temperatures up to 850 deg. F.

(*Continued on page* 138)

Angier

50th. ANNIVERSARY 1895 – 1945

Originator of Protective Packaging Methods and Materials in universal use today.

Waterproof and corrosion preventive wrapping and caselining papers including crinkled:

INDUWRAP
BROWNSKIN
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Ask for Literature and Samples

ANGIER CORPORATION
CORROSION PREVENTIVE AND WATERPROOF PAPERS
FRAMINGHAM, MASSACHUSETTS

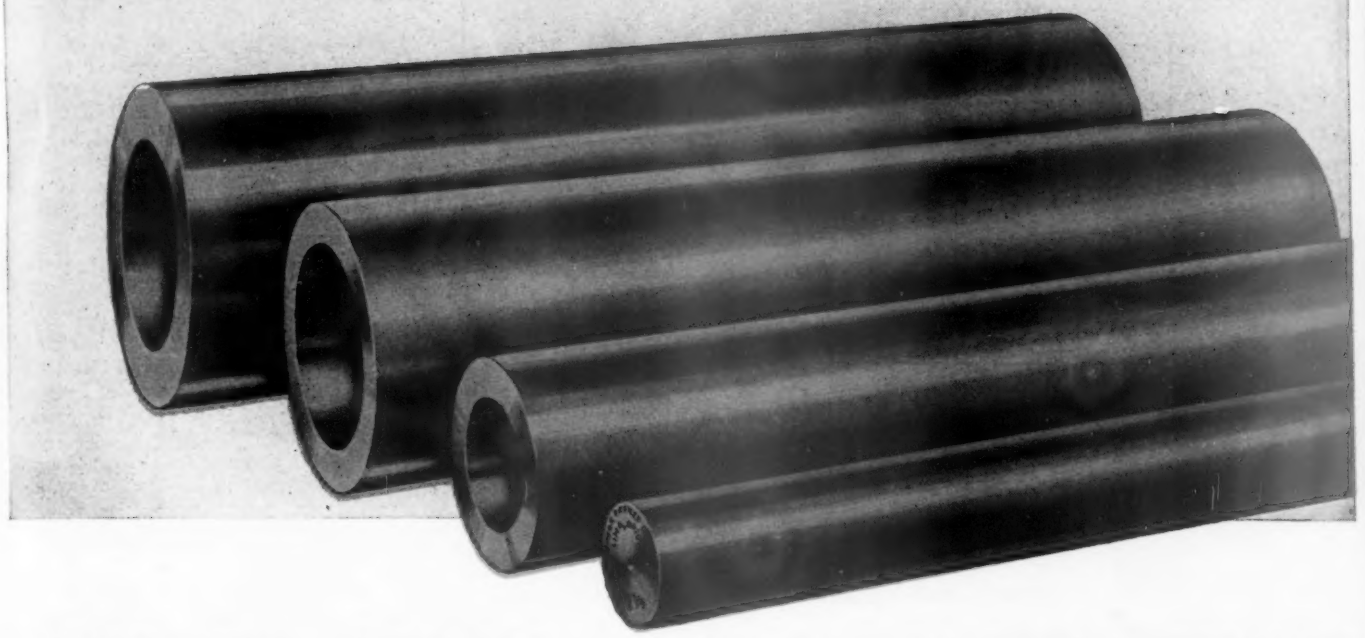
Immediate Delivery!



You can depend upon Redington to make *immediate delivery* of these sturdy, 100% accurate Counters aptly called, "Watchdogs of Production". They count up to 24,000 an hour . . . are available in models for many types of machines and industrial installations . . . are *fully guaranteed.* Write today for the new Catalog.

F. B. REDINGTON CO.
103 So. Sangamon Street Chicago 7, Ill.

FOR MAKING BUSHINGS



LOOK TO SHOOK *for* BRONZE BAR STOCK

Shook dealers stock over 850 different sizes of plain bronze bushings. That's quite a choice . . . and it takes care of all standard applications. To take care of the other sizes . . . and to provide a means for making stock size bushings when the need arises, Shook dealers also carry over 450 sizes of bored bronze bars and solid bronze bars. These bars are 13" long and are machined on all surfaces.

By using Shook precision machined bored bars you save money . . . time . . . and tools . . . as compared to making bushings from rough bars which require more cutting, weigh more and often wreck tools on rough, hard, outer surfaces. The saving in material alone is impressive. A rough bar that will machine to 2" O.D., 1" I.D., 13" long will weigh between 15 and 16 lbs. A Shook bar of this size weighs only 10½ lbs. . . . a saving in metal of ⅓.

NEW *Shook* CATALOG LISTS ALL SIZES

A copy of this new, helpful catalog will be mailed to you upon request. It gives detailed listings of all Shook bushings and bar stock . . . describes Shook babbitt metals . . . gives physical characteristics and other technical data on Shook alloys . . . contains helpful hints on machining bronze. Write for Catalog 45 today!



SHOOK BRONZE CORPORATION

Shook BUSHINGS • BAR STOCK • BABBITTS
BRONZE CORP.
GREENLAWN AND LAKE STREETS • LIMA, OHIO





Millions of whirling abrasive wheels, trained in war's tough school of precision finishing, each doing a prime job in laboratory, tool room, aboard ship, on production line. And — they're all set and eager to tackle civilian goods when peace machinery is singing again.

Whether it's removing burrs, smoothing edges, squaring surfaces so accurately that the finish can be measured in micro inches, or cut-off work — there's a Chicago ready to do a top-ranking job for you.

VITRIFIED GRINDING WHEELS with a 50-year pedigree. Up to 3" in diameter in various abrasives and bonds including the famous FV Bond.

MOUNTED WHEELS. The largest assortment made with a shape and abrasive to take care of every internal and external finishing job.

CUT-OFF WHEELS. All types and sizes. Now offered with the sensational new special-formula RT Bond (rubber or resinoid).

SEND FOR TEST WHEEL. Learn first-hand about Chicago's superiority. Tell us what you have to finish, size wheel you'd like and we'll mail one promptly.

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2000 HP TRI-CLAD MOTOR

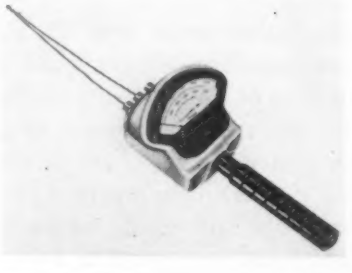


ILLUSTRATION shows 2000 hp Tri-Clad motor, the largest to be added to the Tri-Clad line, is announced by the Motor Division of the General Electric Co. A squirrel-cage induction-type motor, it is especially designed for use in large central power stations and large industrial applications. It is in the 6360 frame series, which is five steps larger in diameter than the largest standardized frame (namely, 505). Operating at 1800 rpm, it is rated 2000 hp, 2300 volts, 3-phase, 60 cycles.

CLEANSER FOR GLASS AND GLAZED CERAMICS

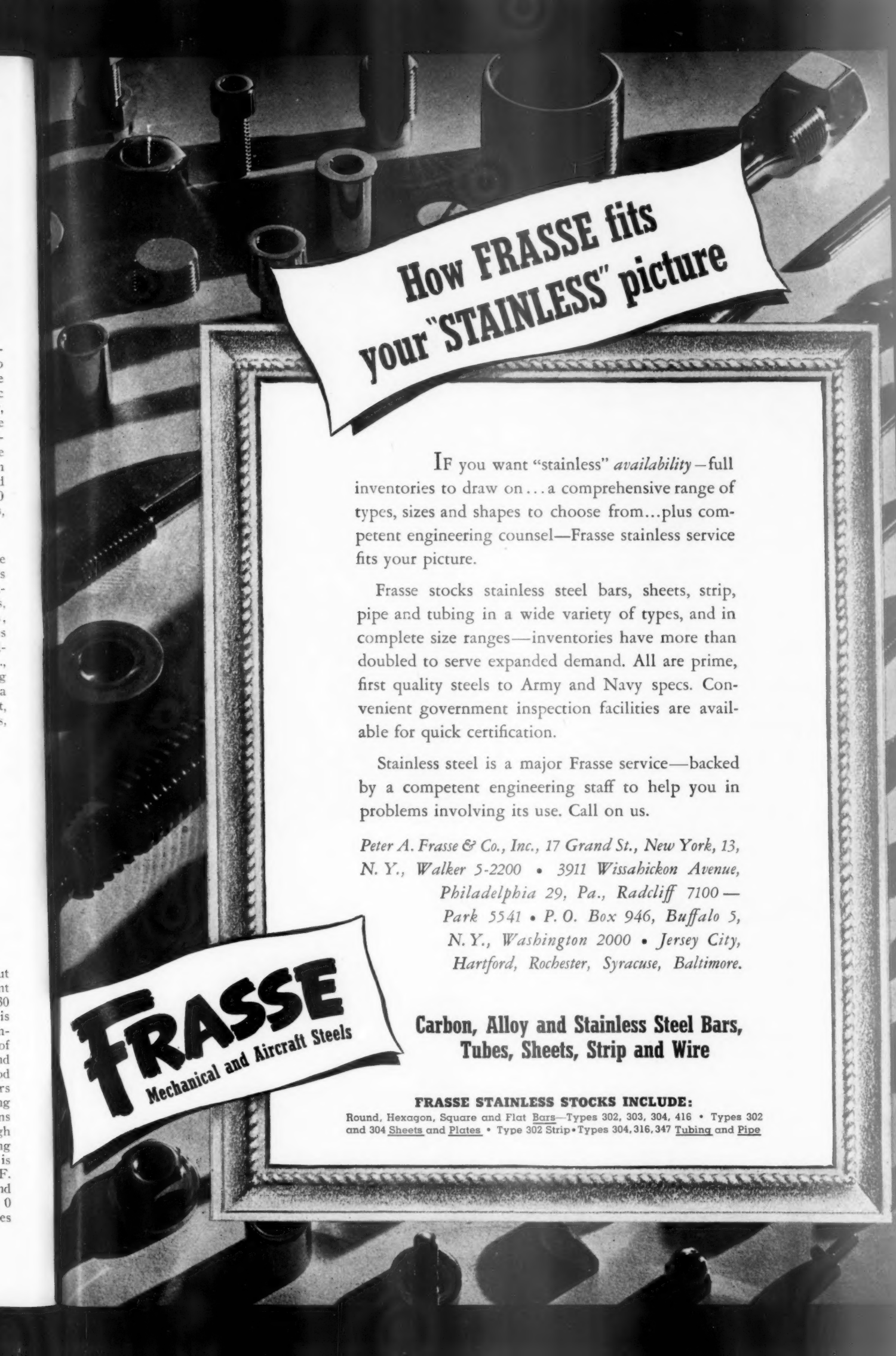
SAMPLE package of Saf-T-Clean is available to manufacturers of glass, glazed ceramics, jewelry, sashes and doors, and allied products from Hudson American Corp., 25 W. 43rd St., New York. It was developed for cleaning quartz crystals. It is claimed to be a quick, safe, and thorough cleansing agent, sudsless, and non-injurious to hands, fabrics, or equipment.

LIGHT PORTABLE PYROMETER



PORTABLE pyrometer, weighing but 1¾ lbs. is announced by the Instrument Division of the K. H. Huppert Co., 6830 Cottage Grove Ave., Chicago, Ill. It is particularly adapted for reading the temperature of molten metals (exclusive of ferrous metals), hot air or liquids and for hot surfaces, if used with the prod type thermocouple. Body design offers maximum reading ease in all working positions, and minimizes side reflections on scale glass. Movement is of high quality, providing accuracy of reading to 2% of scale range. Duo scale is standard with readings of: 0 to 500° F. and 0° to 1000° F., —0 to 750° F and 0° to 1500° F.,—or, 0° to 1000° F and 0 to 2000° F., or equivalent °C. Other scales are available.

(*Continued on page* 142)



How FRASSE fits your "STAINLESS" picture

IF you want "stainless" *availability*—full inventories to draw on... a comprehensive range of types, sizes and shapes to choose from...plus competent engineering counsel—Frasse stainless service fits your picture.

Frasse stocks stainless steel bars, sheets, strip, pipe and tubing in a wide variety of types, and in complete size ranges—inventories have more than doubled to serve expanded demand. All are prime, first quality steels to Army and Navy specs. Convenient government inspection facilities are available for quick certification.

Stainless steel is a major Frasse service—backed by a competent engineering staff to help you in problems involving its use. Call on us.

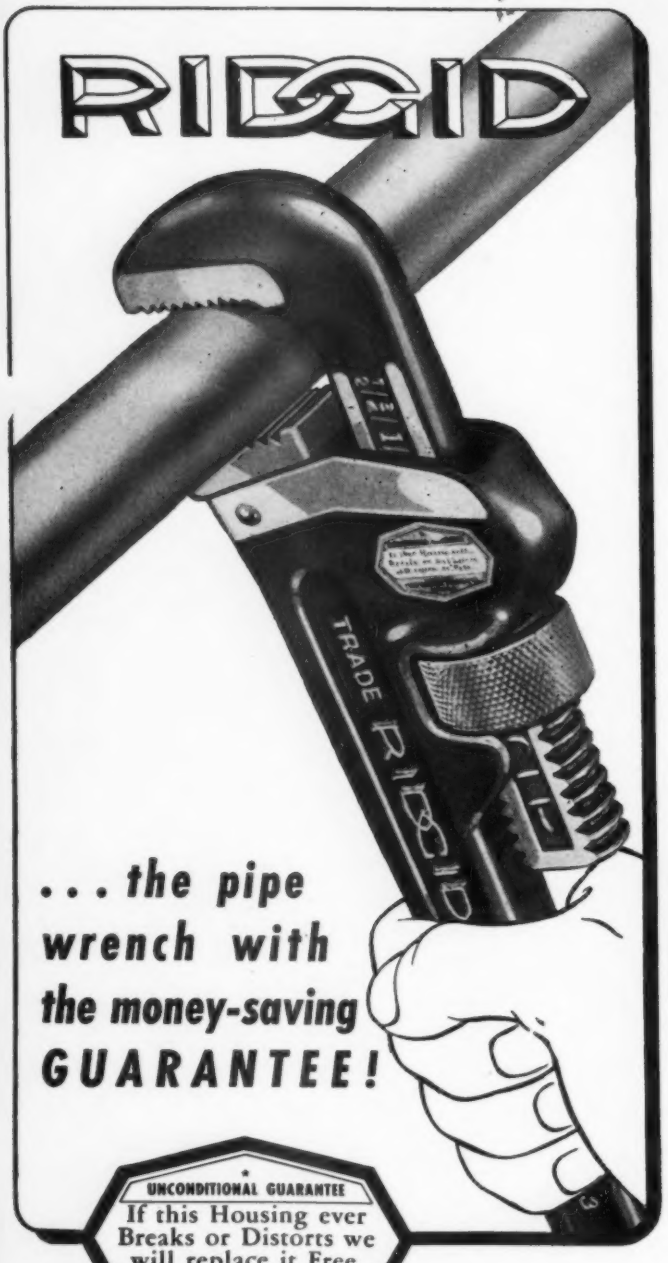
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Carbon, Alloy and Stainless Steel Bars, Tubes, Sheets, Strip and Wire

FRASSE STAINLESS STOCKS INCLUDE:
Round, Hexagon, Square and Flat Bars—Types 302, 303, 304, 416 • Types 302 and 304 Sheets and Plates • Type 302 Strip • Types 304, 316, 347 Tubing and Pipe

RIDGID



. . . the pipe wrench with the money-saving GUARANTEE!

UNCONDITIONAL GUARANTEE
If this Housing ever Breaks or Distorts we will replace it Free
COPR. 1951
THE RIDGE TOOL CO.
ELYRIA, O.

● That straight-forward guarantee means that the RIDGID saves you all bother and expense of wrench housing repairs — an important saving. But this unusual wrench gives you also full-floating hookjaw and replaceable heeljaw that take hold instantly, won't lock on pipe, won't slip. Adjusting nut in open housing always spins easily. Safe powerful I-beam handle has comfort-grip you'll like. For economy and easier work, ask your Supply House for the RIDGID.

Quick Clean Threads

with these tough little steel-and-malleable

RIDGID

RATCHET THREADERS



No special dies needed for close-to-wall threads

● Snap in the size die head you want — from either side, it can't fall out — and you're ready to cut smooth clean threads from ⅛" to 1¼" — quickly, easily. The heat-treated toolsteel dies are beautifully precision-cut and individually tested. A handy feature is the easy reversal of dies to thread close-to-wall pipe — no special dies needed. Smooth internal ratchet, strong malleable drive ring. Buy 0R and 11R threaders . . . at your Supply House.

Handy carrier with any combination of sizes.

Millions of RIDGID Tools in use

RIDGID

WORK-SAVER PIPE TOOLS

The Ridge Tool Company
Elyria, Ohio, U. S. A.



How Much IS THIS COSTING YOU?

PUTTING LOCK WASHERS ON SCREWS BY HAND IS NOW AN UNNECESSARY OPERATION . . . SAVE TIME AND MONEY WITH PRE-ASSEMBLED FASTENER UNITS . . . THE LOCK WASHER CAN'T DROP OFF!

SEMS

Trademark Reg. U. S. Pat. Off.

Fastener Units





Also Available With Phillips Recessed Heads

The cost of putting lock washers on screws by hand is considerable . . . it involves labor, overhead, and many miscellaneous expenses. Comparing this with the cost of assembly when Sems Fastener Units are used . . . *proves* that substantial savings can be made.

In addition to lower assembly costs, Sems Units provide better locking power. Every screw is certain to have a Shakeproof Lock Washer* which can't come off, but is free to rotate. Workers can't "forget" the lock washer . . . the unit is easy to handle and assures fast driving.

Let a Shakeproof Engineer show you the cost-saving, product-improving advantages of pre-assembled fastener units. Write today for this helpful service.

**** The famous Shakeproof Lock Washer with the Exclusive Tapered-Twisted Teeth assures your product of positive vibration protection!***



See **FOR YOURSELF WITH THIS FREE TEST KIT!**

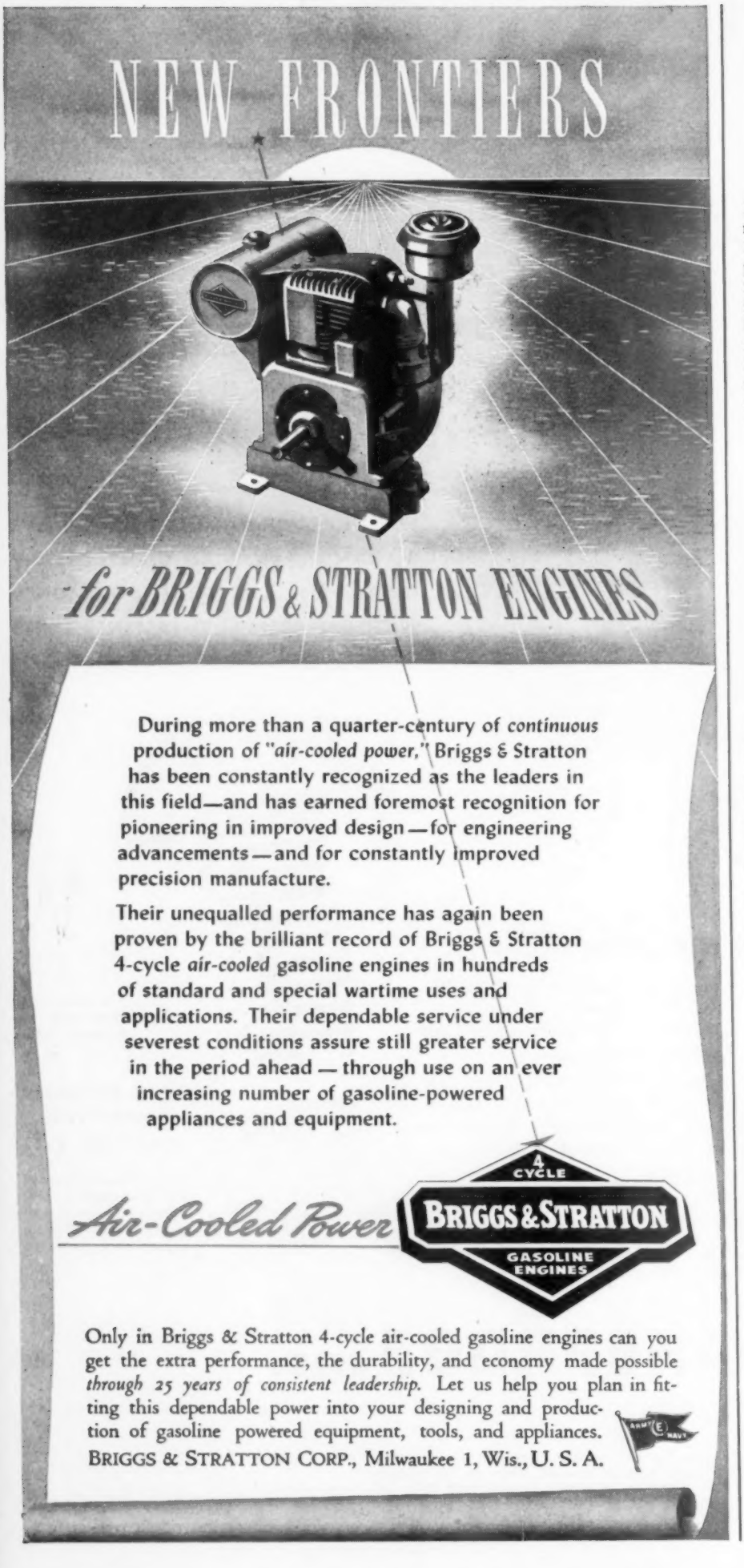
Test Sems Fastner Units on your own product. Kit contains a large variety of types and sizes. Write today and ask for Kit No. 23!

ARMY (E) NAVY

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Distributor of Shakeproof Products Manufactured by ILLINOIS TOOL WORKS
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Plants at Chicago and Elgin, Illinois • In Canada: Canada Illinois Tools, Ltd., Toronto, Ontario
Los Angeles Office: 5670 Wilshire Blvd., Los Angeles, 36, Calif. • Detroit Office: 2895 E. Grand Blvd., Detroit 2, Mich.



NEW STROBOSCOPE



RECENTLY developed CML Model 1200 Stroboscope announced by Communication Measurements Laboratory, 120 Greenwich St., New York., make it possible to "stop" and study rotary speeds from 600 to 600,000 rpm, or vibrations from 10 to 10,000 cps. Small objects may be easily viewed at close range. Accurate repetitive pulse-rate is obtained which is said to insure clearly defined images at high speeds. Light intensity control switch is provided for greater flexibility.

HUGE PRESS BRAKE

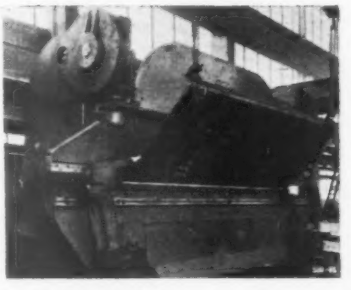
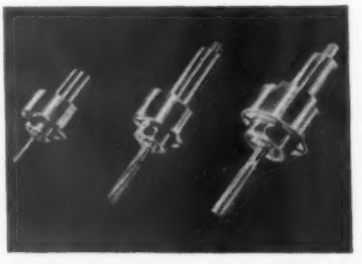


ILLUSTRATION shows huge press brake, which is felt to be the largest mechanical, two-housing press brake in the world, developed by The Cincinnati Shaper Co., Cincinnati, O. It is capable of exerting a pressure of 1,000 tons. Illustration shows brake bending twenty feet of ¾" steel plate cold. The four main members of the machine, the bed, ram and two housings, are each the largest *rolled* steel plates in the world for all practicable purposes. The machine has a dead weight of 250,000 pounds. This brake was built for the American Rolling Mill Co. Catalog available.

REAMER HOLDER



REAMER holder for automatic screw machines which permits the reamer to "float" in any manner necessary to line up with a drilled hole, is now in production in an assortment of sizes at the Green Mfg. Co., Gas-Electric Bldg., Rockford, Ill. On new or old machines the holder is said to automatically compensate for any misalignment of the reamer and the drilled hole. There are no loose or moving parts such as rollers, balls, springs, or friction devices.

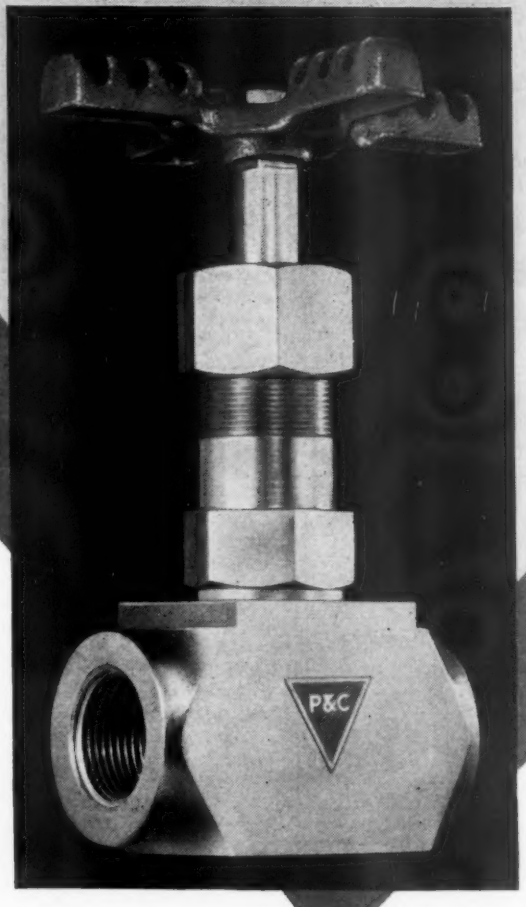
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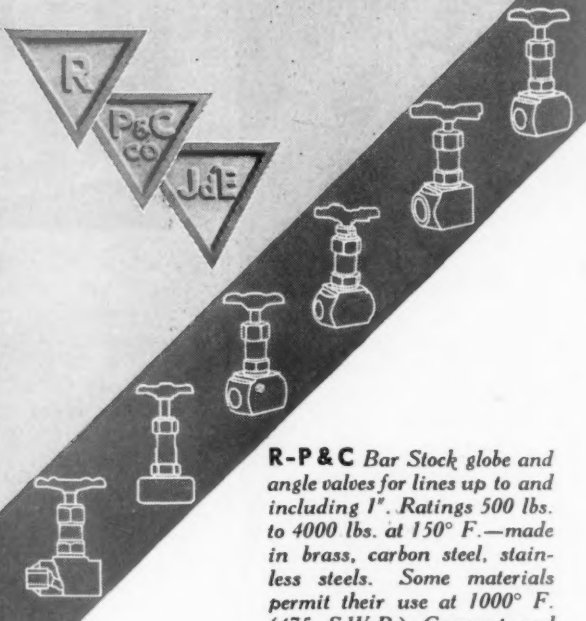
There's a Story behind this fine Valve

It is designed for severe throttling service. It is precision-made of rigidly controlled materials—for high working pressures. It is a Bar Stock valve—originated, developed and improved by **R-P&C** engineers. But that is only a part of the story.

This fine valve is one of a line that is still made under the "high working pressure" of wartime demands—in spite of the "severe throttling" of wartime shortages. And yet these Bar Stock valves are the best ever produced by **Reading-Pratt & Cady.**

It is a fact that **R-P&C** are making better valves today than ever before. We believe that's worth remembering next time you need valves.





***R-P&C** Bar Stock globe and angle valves for lines up to and including 1". Ratings 500 lbs. to 4000 lbs. at 150° F.—made in brass, carbon steel, stainless steels. Some materials permit their use at 1000° F. (475 S.W.P.) Compact and sturdy for their ratings—low in price for their superior performance and long life.*

R-P&C offers you a single responsible source for bronze, iron and steel gate, globe, angle and check valves—cocks and Lubrotite gate valves—bar stock valves—cast steel fittings—D'Este Automatic Valves and Engineering Specialties.

READING-PRATT & CADY

MANUFACTURERS OF
READING CAST STEEL VALVES AND FITTINGS • PRATT & CADY BRASS AND IRON VALVES
D'ESTE VALVE AND ENGINEERING SPECIALTIES

Reading, Pa. • Atlanta • Boston • Chicago • Denver • Houston • Los Angeles • New York • Philadelphia • Pittsburgh • San Francisco • Bridgeport, Conn.

ACCO

TRADE MARK

READING-PRATT & CADY DIVISION
AMERICAN CHAIN & CABLE



These strong protective, work gloves are the product of one of America's largest textile mills. They are Riegel-controlled — in one plant—from raw cotton to finished glove. This single close supervision of every detail results in unexcelled quality — durability — economy.

Riegel
WORK GLOVES

The Right Glove Riegel For Every Job

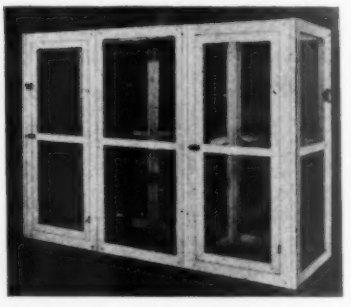
RIEGEL TEXTILE CORP.
342 MADISON AVE.
NEW YORK 17, N. Y.

CONICAL SURFACE MARKER



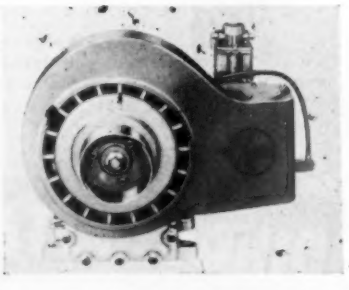
CONICAL surface marking with standard straight line type or die is made possible with No. 9AP machine developed by The Acromark Co., 384 Morrell St., Elizabeth, N. J. Manufacturer states long markings on cone shaped parts are easily done with the machine. Standard work-holding fixtures for round, cylindrical and flat parts are available. Machine may also be adapted to the serial numbering of cylindrical parts and a variety of die holders are available for long, short or multiple line marking.

PORTABLE STORAGE ROOMS



PORTABLE storage rooms constructed with substantial wood frames, frames being covered with heavy galvanized wire screening are announced by Drinkwater, Inc., 2323 So. Mich. Ave., Chicago. Panels interlock in such way that rooms or batteries of rooms can be quickly and easily assembled for temporary or permanent storage of food, supplies, tools and varied types of equipment. Manufacturer states that the complete units, with ceiling panels, are rat and mouse proof. Provision is made for anchoring to floor where this is desired. Printed matter available.

5 HP AIR-COOLED ENGINE



ALL-purpose 5 hp air-cooled engine is announced by Kinner Motors, Inc., Glendale, Calif. It is known as the "Busy Bee". Model AB-3 is an air-cooled, 4-cycle L-head engine rated hp., at 2600 rpm, but develops 6hp at 3250 rpm. Bore is 2¾", stroke 3", displacement 17.8 cu. in. The whole unit requires only 2.4 cubic feet of space. Printed matter available.

(*Continued on page* 146)

A practical book for executives—



INDUSTRIAL PURCHASING
With Hints on Working with Purchasing Agents

By Edwin Laird Cady

Industrial Management Consultant

HOW to coordinate the purchasing function with other functions such as producing, financing, selling, distributing, etc.

HOW to interpret and supply the needs of your company for goods and services.

HOW to work smoothly with suppliers in order to procure the best possible goods and services for your company, and at the same time keep costs down.

This book reflects the experience, not of one man, but of many in the proper handling of the purchasing function. In practical, down-to-earth language, with actual examples from varied types of industry, it explains the nature of the purchasing agent's job, its place in the industrial set-up. Furthermore, it tells how to meet and do business with salesmen; how to maintain the proper quantity and quality of supplies; how to conduct the interviews and conferences which are so much a part of the purchasing agent's work; how to determine what types of materials should be ordered, and when and how much, as well as which supplier should be given the order. All these, and the many other aspects of the purchasing agent's job, are described. The book gives a broad over-all picture of the purchasing function and its importance in the cooperative world of industry today.

Published 1945 256 Pages $2.75

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P-7-45

A HUSKY *Little Brother* joins the foremost family of welding production boosters

They asked for it.

Superintendents, welding foremen and shop owners all over the country wanted a small AC arc welder for the odd jobs and light work that would compare in performance with the big "Bumblebees" that pointed the way to new welding output and economy records in hundreds of plants.

So here it is—the new 200 Ampere Wilson "Bumblebee" AC Arc Welder with

—the same rugged, trouble-free construction that has made the name "Bumblebee" a synonym for dependability in the welding world.

—the same high efficiency that increases production 15% to 30% without sacrifice of quality.

—the same freedom from "arc blow" that assures sound, uniform welds in all positions.

—the same economy that cuts power bills 30% to 35%.

—all of the other outstanding "Bumblebee" features.

● If you have jobs that can be done by a 200 ampere machine, it will pay you to know this new "Bumblebee". Ask your nearest Airco office for bulletin ADW62 or write Dept. PR, Air Reduction General Offices: 60 East 42nd Street, New York 17, N. Y. In Texas: Magnolia Airco Gas Products Co., General Offices: Houston 1, Texas.

AIR REDUCTION

OFFICES IN ALL PRINCIPAL CITIES AIRCO

Combining all these *"Bumblebee" features*

Two range current control with precise, stepless adjustment of welding current to any value within each welding range is provided by easy-turning crank.

Efficient natural draft ventilation assures safe, dependable operation, even when welding with maximum current.

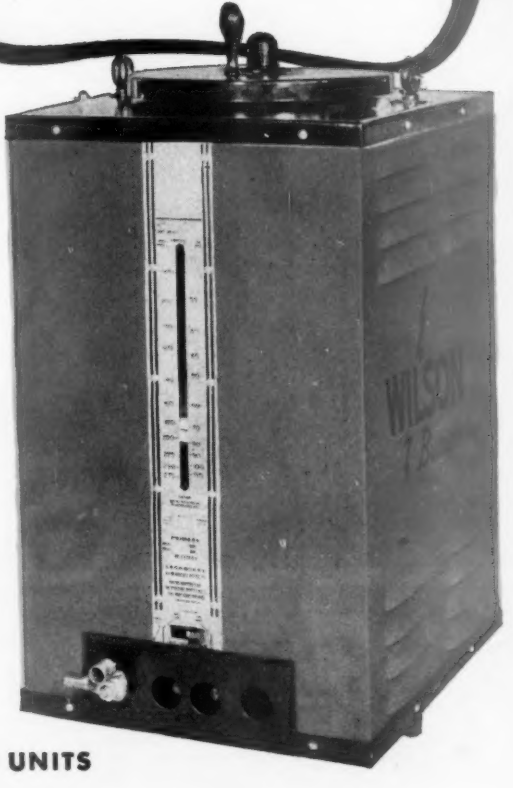
Reduced power factor charges and relief for overloaded power lines are provided by built-in capacitors located in bottom of case.

Coils protected against fire and vermin by mica and glass fabric insulation.

Interchangeable primary terminals permit easy, rapid change from low to high line voltage or vice versa.

High visibility of current indicator is assured by large, easily read calibrated scale located on the outside of the case.

Disconnect switch furnished as standard equipment with this model.



New **200 AMPERE**

WILSON

"Bumblebee"

Registered U. S. Patent Office

A.C. **ARC WELDERS**

with the penetrating, stinging arc

COMPLETE LINE OF A.C., D.C. AND GAS-ENGINE DRIVEN UNITS

A HORSE FOR WORK — there's a reason why this Silver Streak Metal-Working Cloth



Belt keeps cutting clean and fast long after ordinary aluminum oxide belts, costing as much or more, give up the ghost. It's because SILVER STREAK is insulated — insulated to stay cool at grinding heats as high as 1700! Try SILVER STREAK Grits — 40, finer.



Abrasive Products, Inc.
SOUTH BRAINTREE 85, MASSACHUSETTS
JEWELOX • JEWEL EMERY • JEWEL GARNET • JEWELITE • JEWEL FLINT • NEW PROCESS

LAYOUT PLATE

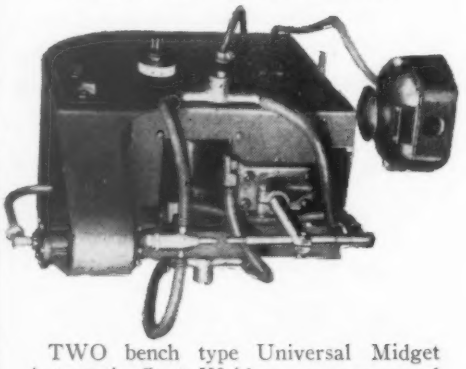


MORE economical method for the transfer of information from blueprint or loft to master model, pattern, jig or fixture, known as the MLM Radial Layout Plate, is announced by the Contour Co., 43 E. Green St., Pasadena, Calif. It makes available a flat working surface in any of the three dimensions. Surfaces intersect each other at 90°. Through the use of specially designed protractors, a flat vertical surface is automatically held on the radius line throughout the entire 360 degrees. Plates are furnished in two regular sizes, 24″ and 96″. Literature available.

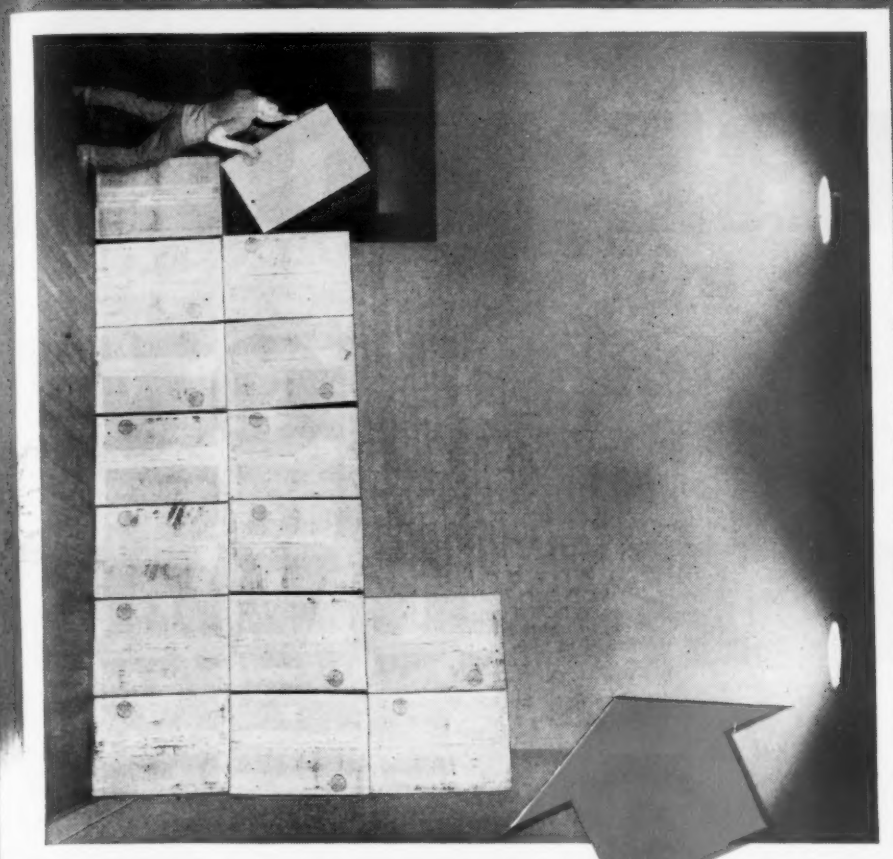
PORTABLE ELECTRIC SANDERS-GRINDERS

TAKE-ABOUT Surfacer, Model A-3 is new portable, electric hand sander-grinder introduced by Porter-Cable Machine Co., Syracuse, N. Y., on which endless abrasive belt operates over a flat or convex shoe. Tool may be plugged into light socket. It may be used in any position on metals, wood, plastic, stone and marble. Motor: Universal DC-AC, 25-60 cycle, single phase, either 115 or 220 volt; ¾ hp. Belt speed 1600 sfpm. Size over-all, 5⅛″ x 16″ x 7¾″. Weight 14 lbs. net.

BENCH TYPE SPOT WELDERS



TWO bench type Universal Midget Automatic Spot Welders are announced by Interstate Machinery Co., Inc., 1431 W. Pershing Road, Chicago, Ill, for precision welding of light metals; U.S.P. 1 (1 KVA) and U.S.P. 3 (3 KVA) with built in automatic weld timer or with separate timer panel for stitch welding, automatic repeat pulsation welding, or synchronous 1 cycle timer. Welders are equipped with water-cooled transformer, electrodes and tips and are air operated. They are controlled by foot switch, solenoid valve and pressure switch.





THERE'S *NOTHING WRONG* WITH THIS PICTURE . . .

We tilted this picture on purpose—to illustrate a simple idea for saving storage space.

Turn the page to the left. Compare the waste of upper space in this, the conventional scene, with the efficient, *vertical* stacking. This efficiency is yours—with a Barrett Portable Elevator. You can "turn your storeroom on its side" . . . to double or triple your space . . . to save heat, light and maintenance . . . *perhaps even save the cost of a new building.*

To the saving in space, you add a big saving in man power . . . for *one* man with a Barrett Portable Elevator can do more than 3 or 4 without it. All these savings are no further away than your nearest Barrett engineer. Call him today . . . or write for full particulars.

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A copy of the Barrett Junior Catalog will be sent you on request.

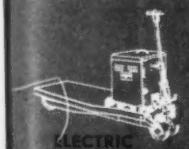
BARRETT

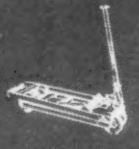
ONE MAN DOES MORE THAN 3 OR 4 . . . WITH A BARRETT

Barrett Handling Equipment


PORTABLE ELEVATORS


STEEL STORAGE RACKS


ELECTRIC LIFT-TRUCKS


HAND LIFT-TRUCKS


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NIFTY SYSTEMS

WIRE ROPE
NOW
FOR KNOWN

A new wire rope sling service that offers these outstanding features: *1.* Every **ACCO** "Registered" Wire Rope Sling is proof tested to twice the rated capacity. *2.* Certificate of test and registry showing actual proof test load and rated strength is furnished. *3.* Each sling identified with metal registry tag. *4.* Made only from Preformed Wire Rope of Improved Plow Steel Grade.

ACCO "Registered" Service helps you select the right wire rope sling for your particular job—then registers and identifies it for known strength.

ARMY E NAVY

ACCO

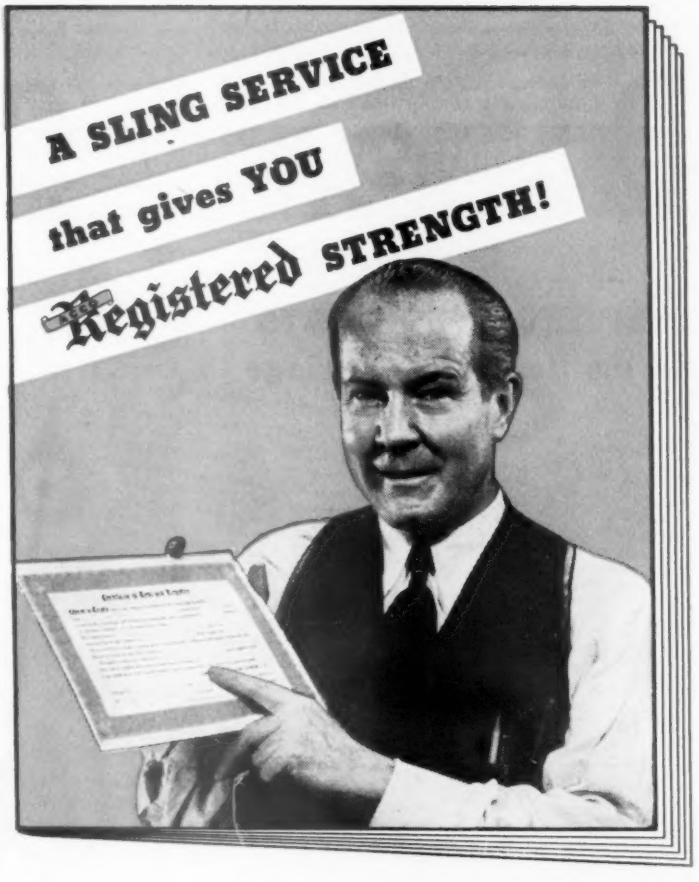
Wilkes-Barre, Pa., Atlanta, Chicago, Denver, Los Angeles, New York, Philadelphia, Pittsburgh, Portland, San Francisco, Tacoma, Bridgeport, Conn.

ACCO TRADE MARK

HAZARD WIRE ROPE DIVISION
AMERICAN CHAIN & CABLE

In Business for Your Safety

SLINGS ACCO Registered STRENGTH



Send for this Bulletin
which gives you
7 reasons why
ACCO "Registered" Wire Rope Slings
give you known strength

*COLOVOLT COLD CATHODE INDUSTRIAL FIXTURES



Here is the new Colovolt industrial fixture, one of a complete line of industrial and commercial "packaged" units. Equipped with the standard 93" Colovolt 10,000 hour lamp, Colovolt fixtures may be used singly or in continuous line lighting in multiples of 8 feet. Instantaneous starting, no flickering, guaranteed for 1 year except for failure due to breakage are extra advantages of the Colovolt Cold Cathode low voltage fluorescent lamp. The long life expectancy of Colovolt lamps may be realized even when constantly turned on and off, and *pre-scheduled re-lamping, with no loss of production or time, is now possible with Colovolt installations.*

*Trade mark registered U. S. Pat. Off.

Contact your electrical wholesaler or jobber, or write us for full details and prices.

GENERAL LUMINESCENT CORPORATION
656 S. FEDERAL STREET CHICAGO 5, ILLINOIS

PROTECTING AUTO PARTS
Since the Horseless Carriage



Products *must* be good to merit year-after-year acceptance in the fast-moving automotive field—an industry that pioneered in modern production methods and whose engineering achievements are almost legendary.

The automotive industry has been served since its beginning by Hanson-Van Winkle-Munning equipment and supplies for *protective* plating and finishing of many working and ornamental parts.

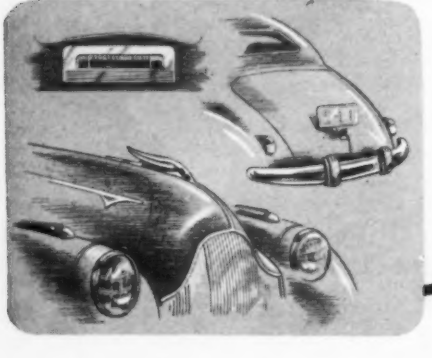
Our proved ability to work in close cooperation with the automotive industry in developing special plating and finishing equipment to its own requirements is one reason for our position in the field. Another reason is our readiness to cooperate at all times in the design and layout of new plating and polishing departments. This H-VW-M engineering counsel is available to *all* industries. We are ready to work with you on plating and finishing problems you may have today. Why not write us about them?

HANSON-VAN WINKLE-MUNNING CO.
MATAWAN, NEW JERSEY

Manufacturers of a complete line of electroplating and polishing equipment and supplies

Plants: Matawan, New Jersey • Anderson, Indiana • Bridgeport, Connecticut
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COMPOSITIONS
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CONVEYORS (Full-Automatic)
DIPPING BASKETS
GENERATORS
MICROSCOPES (Electroplater's)
PLATING BARRELS
RECTIFIERS
RHEOSTATS (Tank)
TANKS
WHEELS (Polishing)
WRAP-RAX



7498

FLAME-RESISTANT PLASTIC ANNOUNCED BY GENERAL ELECTRIC

The development for the Navy of a plastic, combining the qualities of fire—plus shock-restistance and easy molding properties is announced by General Electric Company.

Intensive research begun in the company s plastic laboratory at the request of the Navy Department, which organized an industry committee to study the problem of developing such a plastic material, has produced a product that can withstand fire and its resultant toxic effects during battle action, as well as the concussions and vibrations of battle-wagon broadsides.

The stresses and strains of battle action set the standard for the Navy specifications of the material which G-E engineers and chemists sought. The specifications called for a plastic that was relatively fire-resistant and non-toxic, and had good electrical properties, high impact strength and easy moldability.

The laboratory men, working with Dr. Howard W. Haggard of Yale University, learned that it was impossible to use any appreciable amount of organic filler in a laminated plastic or molding compound to fit these specifications, regardless of what kind of resins were used, without obtaining a material that gave off toxic gases fatal to human beings, depending on several factors including the size of the room and length of burning.

The chemists then turned to the use of inorganic filler-type of materials, such as asbestos and glass. At the end of the long research road they selected asbestos as the type of inorganic filler they wanted because it embodied all of the specifications—relative high flame-resistance, low toxicity, easy moldability and shock resistance.

The researchers then bound the asbestos fibers together with certain phenolic resins to make a series of plastics with various shock resistances.

Glass, the other inorganic material, is used in another plastic development for the Navy. This type of plastic is used as panel board on ships. It is made by bonding layers of glass cloth together with melamine resin in high-pressure presses.

"MO-MAX" LICENSES

Newest addition to the list of steel mills producing MO-MAX molybdenum-tungsten high speed steels is Firth-Sterling Steel Co., McKeesport, Pa. This company will market MO-MAX steels under the trade names "HI-MO" and "SUPER HI-MO."

The complete list of MO-MAX licensees, with their brand names, is as follows:

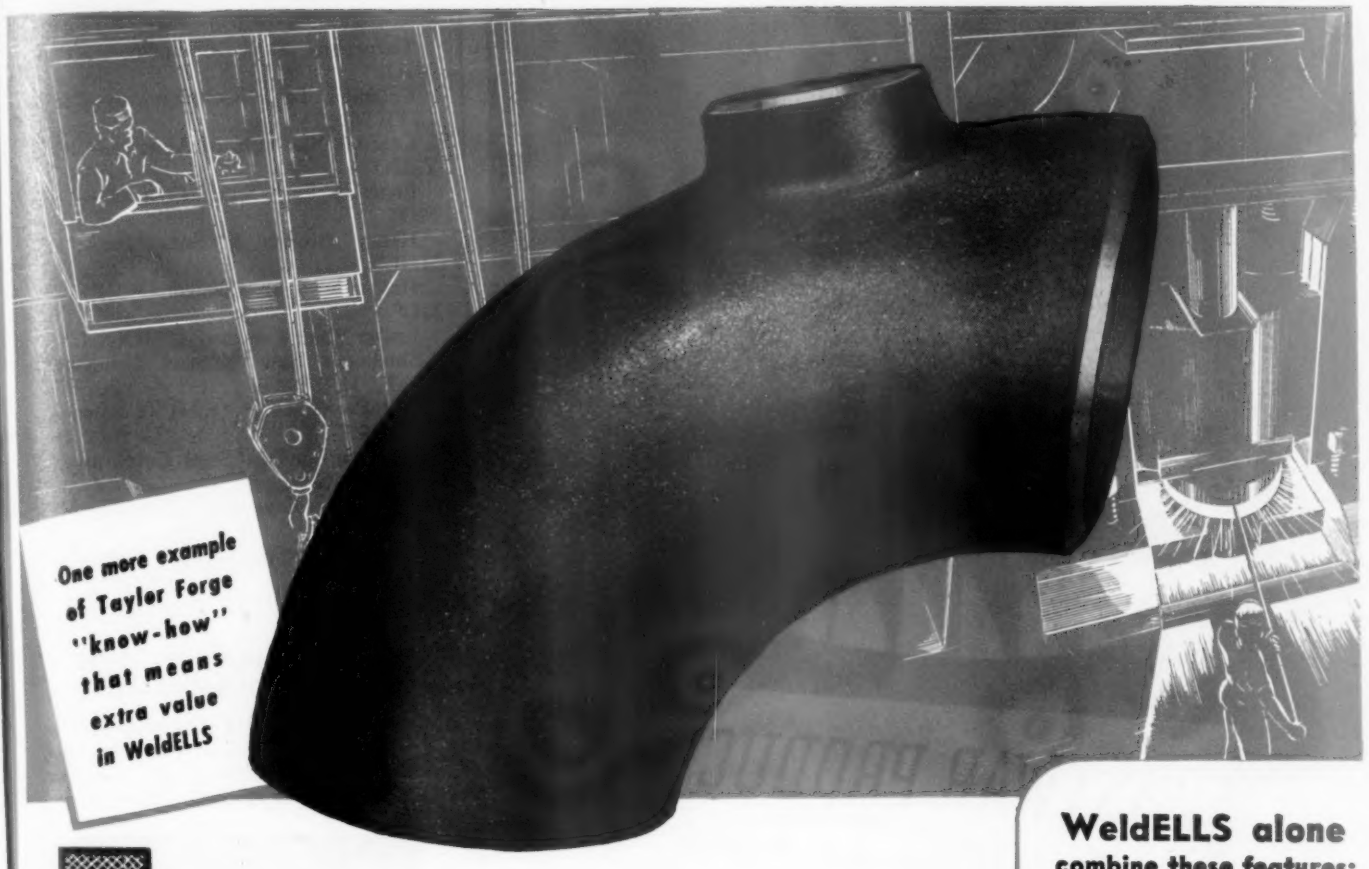
Allegheny Ludlum Steel Corporation —"LMW"

Bethlehem Steel Company—"BETHLEHEM HM"

Braeburn Steel Company—"MO-CUT"

Canadian Atlas Steels, Ltd.—"MO-

(*Continued on page* 152)



There's always another one for us!

★ *Just when we think we've seen everything in special forged fittings another tricky requirement turns up . . . and probably always will. This time it's an order for seven-inch carbon-moly WeldELLS with integrally formed 3-inch outlets in their back walls.*

We have solved problems that are a lot tougher than this, but none exactly like it. Thus, like hundreds before it, it has contributed its share to the sum total of Taylor Forge "know-how" . . . is one more proof that we have honestly earned our reputation for doing things with hot metal no one else does.

THE unduplicated experience of Taylor Forge in the field of special forging has a vital bearing on your choice of standard welding fittings. It means there is nothing to be desired in welding fittings that is not within the scope of the methods and facilities that have grown out of this experience.

By applying these methods and facilities we have given WeldELLS features that are not combined in any other fittings. A good example of this is the uniform strength achieved through proper distribution of extra metal where stresses are higher. Another, is the extreme dimensional accuracy attained by special truing operations. Still another is the special process which forms the tangents, and there are many more.

This specialized Taylor Forge knowledge is responsible for the features listed opposite—is the reason why those who are best qualified to know will agree that

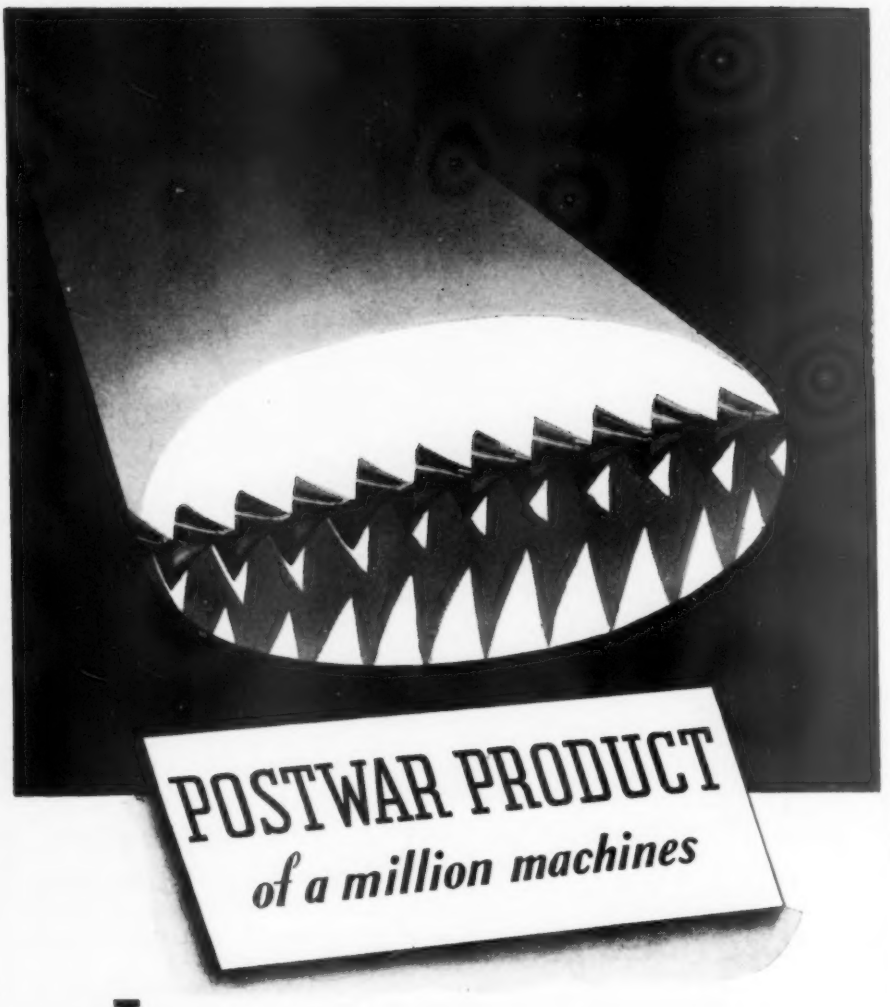
WeldELLS alone combine these features:

- **Seamless** — greater strength and uniformity.
- **Tangents**—keep weld away from zone of highest stress—simplify lining up.
- **Precision quarter-marked ends**—simplify layout and help insure accuracy.
- **Selective reinforcement** — provides uniform strength.
- **Permanent and complete identification marking**—saves time and eliminates errors in shop and field.
- **Wall thickness never less than specification minimum**—assures full strength and long life.
- **Machine tool beveled ends**—provides best welding surface and accurate bevel and land.
- **The most complete line of Welding Fittings and Forged Steel Flanges in the World** — insures complete service and undivided responsibility.



WeldELLS have everything

TAYLOR FORGE & PIPE WORKS, General Offices & Works: Chicago, P.O. Box 485
New York Office: 50 Church Street • Philadelphia Office: Broad Street Station Bldg.



AFTER V-DAY, reconversion notwithstanding, thousands of metal-working factories will turn out the same products they made during and before the War. The products will be chips.

To the experienced eye, chips are valuable indicators of machining performance. Cutting fluids are a vital consideration in developing properly formed chips—not just to "cool" the tool and workpiece, but to prevent welding of metal to tool and to lubricate heavily loaded areas. So interrelated are the factors of metal-cutting operations that slight changes in the composition of cutting fluids alone can radically alter the shape and direction of chips.

Stuart men know how to make properly balanced cutting fluids—and how to apply them for top results. Through them, 80 years of experience is yours for the asking.

The 60-page Stuart booklet, "Cutting Fluids for Better Machining," contains interesting facts about chips and cutting fluids. Write D. A. Stuart Oil Co., Limited, 2727-31 So. Troy St., Chicago 23, Illinois.



D. A. Stuart Oil CO.
LIMITED
ESTABLISHED 1865
Stocks in Principal Metal-Working Centers

(*Continued from page* 150)

Carpenter Steel Company—"STAR MAX"
Columbia Tool Steel Company—"MO-LITE 8"
Crucible Steel Co. of America—"REX T-MO"
Firth-Sterling Steel Company—"HI-MO"
Henry Disston & Sons, Inc.—"DI-MOL"
Halcomb Steel Company—"REX T-MO"
Jessop Steel Company—"MOGUL"
Simmonds Saw & Steel Company—"S. T. M."
Latrobe Electric Steel Company—"TATMO"
Universal-Cyclops Steel Corporation—"MO-TUNG"
Vanadium-Alloys Steel Company—"8-N-2"
Vulcan Crucible Steel Company—"VUL-MO"

KEASBEY & MATTISON OPEN NEW RESEARCH LABORATORY

On May 25th, 1945 Keasbey & Mattison Company of Ambler, Pennsylvania, manufacturers of asbestos and magnesia products, formally opened their enlarged



Looking over Keasbey & Mattison's Asbestos Samples

research laboratory which has been more than quadrupled in size during the past year. The laboratory contains the latest equipment for new product research, manufacturing process improvement and quality control.

Groups of employees and visitors were conducted through the laboratory accompanied by guides who gave the descriptive accounts of the processes in operation. The most advanced techniques in asbestos were thus dramatically presented emphasizing the K&M Slogan, "best in asbestos".

SMALL, PORTABLE WATER PURIFIER

A water purification unit which weighs four pounds, capable of producing a half gallon of potable water per minute, is now supplied by the Corps of Engineers to the Army in the European and the Pacific theaters. This unit, consisting of pump, filter unit, and tubing, comes in a canvas case that can easily be carried by one man in addition to his regular

(*Continued on page* 156)



Can We Help?

Are you taking full advantage of Hercules' Technical Service in solving your paper sizing problems? Let us show you how the Paracols* and other special Hercules sizing materials can help. ***Write, wire, or phone!***

SUPERIOR PMC CHEMICALS

PAPER MAKERS CHEMICAL DEPARTMENT

HERCULES POWDER COMPANY
INCORPORATED

944 KING STREET, WILMINGTON 99, DELAWARE

In Canada: Hercules Powder Company (Canada) Limited, Freeman, Ont.

*Reg. U. S. Pat. Off. by Hercules Powder Company

PI-52

"Electrical Surges at Shift Change Caused Shutdowns On Our War Loaded Circuits —But BUSS Fuses Cured Our Trouble."



Mr. V. R. LUNDQUIST, *Plant Engineer*
The Benrus Watch Company
Waterbury, Connecticut

"Ours was a typical plant expanding rapidly due to increased production for war," Mr. Lundquist explained. "All of our lines were loaded to near capacity. Then trouble started. Fuses in branch circuits were blowing as often as 5 or 6 times a week at shift changes. The sudden surges created in the lines when a battery of machines started simultaneously caused ordinary fuses to blow. Then, of course, the machines shut down and irreplaceable production time was lost.

"About January, 1942, we installed Buss Super-Lag fuses in all circuits. The trouble was corrected immediately, and we have experienced no recurrence of this costly nuisance.



Why **BUSS Fuses Don't Blow Needlessly**

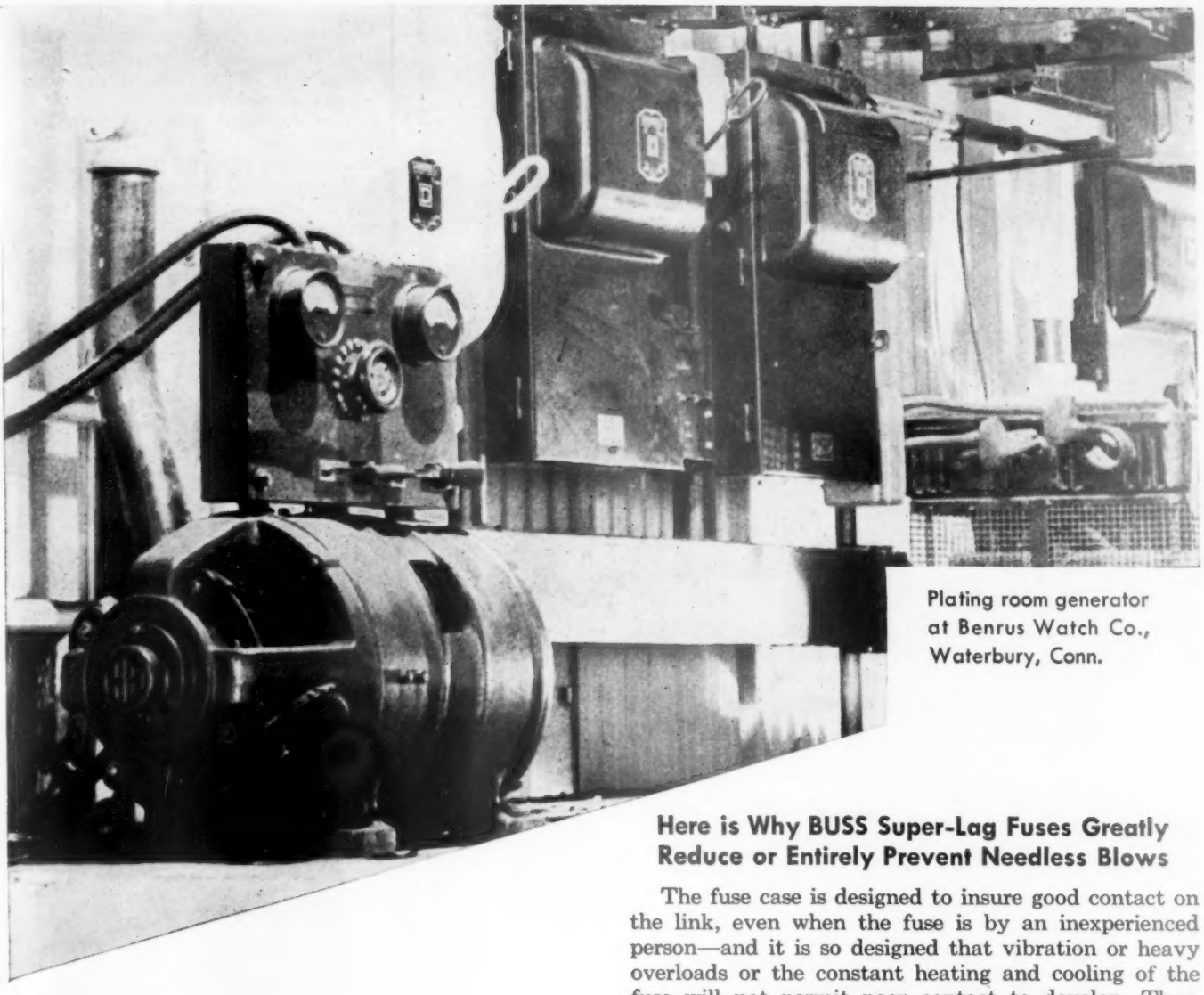




10 FEATURES in the design of the FUSE-CASE help make it possibe

and **The SUPER-LAG** development in the FUSE-LINK completes the job.

BUSS



Plating room generator at Benrus Watch Co., Waterbury, Conn.

You, too, CAN PROFIT BY STANDARDIZING ON BUSS FUSES

Mr. Lundquist's experience that led him to specify BUSS fuses at Benrus Watch Company is a typical reaction of men who have tried these fuses. It is proof that shutdowns caused by needless blows can be prevented—and adequate protection can be provided in the same protective device.

As for BUSS Super-Lag fuses—the experience of thousands of plants throughout all industry has proven time and again that by using them you can obtain trouble-free protection at a lower overall cost than with any other renewable fuse.

They require no maintenance or periodic inspection. They don't open needlessly. If one opens you know there is some fault that needs correction.

Here is Why BUSS Super-Lag Fuses Greatly Reduce or Entirely Prevent Needless Blows

The fuse case is designed to insure good contact on the link, even when the fuse is by an inexperienced person—and it is so designed that vibration or heavy overloads or the constant heating and cooling of the fuse will not permit poor contact to develop. Thus, excessive heat which causes fuses to blow when they should not is prevented.

The fuse link used is the famous "BUSS SUPER-LAG." It has lag-plates attached which give it a long time-lag so that unusually heavy starting currents or other harmless overloads will not cause the fuse to blow.

And Here is How to Solve the "Shutdown Problem" in Your Own Plant

Pass the word along that all purchase records dealing with circuit protective devices should be immediately changed to call for BUSS Super-Lag Renewable fuses. Then, as fuses are replaced or new installations made, your plant will automatically get the benefit of the carefree, trouble-proof protection that BUSS Super-Lag fuses give.

BUSSMANN MANUFACTURING CO.
University at Jefferson, St. Louis 7, Missouri
Division McGraw Electric Company

Super-Lag FUSES SOLD THROUGH WHOLESALERS



GET THIS STRAIGHT . .

—there isn't a tracing paper made that can hold a candle to Arkwright Tracing Cloths!



DRAFTSMEN RATE

Arkwright Tracing Cloths miles ahead of everything in sharpness of reproduction, transparency, ability to take erasures!



P. A.'S STATE

that in the long run Arkwright Tracing Cloths don't cost a bit more than tracing papers. Write for free samples. Arkwright Finishing Company, Providence, R. I.



Sold by leading drawing material dealers everywhere

Arkwright
TRACING CLOTHS
AMERICA'S STANDARD FOR OVER 20 YEARS

(*Continued from page* 152)

equipment. It is manufactured by Wallace and Tiernan, of Newark, N. J., and is designed to fill the canteens of a platoon of men in twenty minutes.

The assembled unit is 6¾ inches in diameter and 3¼ inches tall. The three main elements of the assembly are the pumping unit at the top, the filter supporting element (double faced) beneath it and the base. The entire unit is assembled by means of an adjustable clamping ring.

BULLDOZERS—OLD & NEW

Although millions of people think of the bulldozer as the secret and surprise weapon of World War II, its newness is only in its application to military uses



Grandaddy of Bulldozers—The Russell "Bull Dozer" or marsh filler.

Tractors equipped with bulldozer blades have been used by earthmovers since early in the '20's. Prior to that time, horses provided the power.



World War II version of Bulldozer

The earliest bulldozer of record was offered in a catalog issued in 1917 by Russell Grader Mfg. Co. of Minneapolis, now a part of Caterpillar Tractor Co. of Peoria, Illinois. The name "bulldozer" seems to have come from a heavy horizontal press which bears that name and which has been commonly used in forge shops for many decades past.

FOR LIGHT METAL ASSEMBLIES

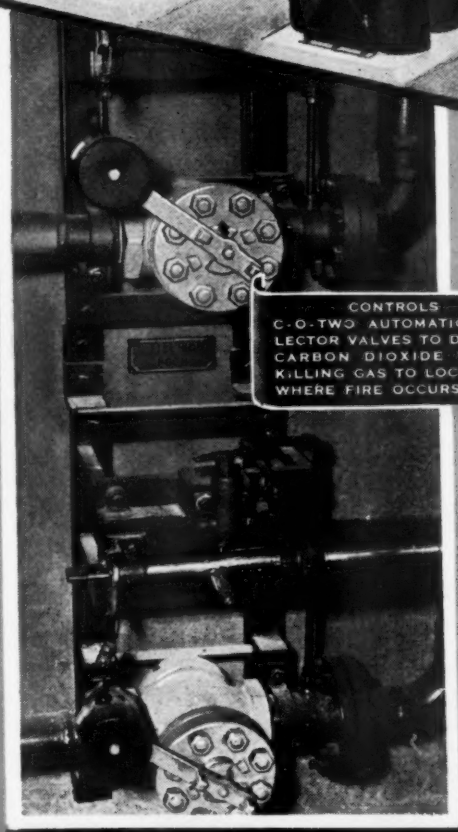
A new prefabricated light metal construction, known as Lindsay Struc-Lok, based on a patented method of snap assembly which requires no bolts, screws, rivets, or welds, has just been announced by Lindsay & Lindsay, Chicago. Struc-Lok has been developed by the company to complement its other product. Lindsay Structure, and to extend the advantages of prefabricated metal assembly to a

(*Continued on page* 158)

C-O-TWO —guards an arsenal



With one of the world's Largest Carbon Dioxide Fire Protection Systems. Here is the C-O-TWO installation of 273 hundred pound capacity carbon dioxide cylinders . . . or more than 13 tons of carbon dioxide.



CONTROLS C-O-TWO AUTOMATIC SELECTOR VALVES TO DIRECT CARBON DIOXIDE FIRE-KILLING GAS TO LOCATION WHERE FIRE OCCURS.

C-O-TWO IS A REGISTERED TRADE MARK AND CORPORATE NAME OF THIS COMPANY. C-O-TWO SMOKE DETECTING, FIRE EXTINGUISHING SYSTEMS AND PORTABLES ARE FULLY APPROVED FOR MARINE USE AND LISTED BY UNDERWRITERS' LABORATORIES AND FACTORY MUTUALS.

At one of the largest arsenals where thousands of incendiary bombs are stored, packed and loaded for the allied forces on all fighting fronts, every moment presents untold dangers—the greatest of them, fire—fire among tons of incendiary bombs! To guard against all possibility of such a catastrophe, reactor room, filling room and storage space of the arsenal are protected by a C-O-TWO Fire Extinguishing System; one of the largest carbon dioxide fire protection installations in the world.

IT'S SAFER because IT'S FASTER

At a second's notice, 273 C-O-TWO cylinders can automatically flood the protected hazards with 13 tons of fire-killing carbon dioxide gas. Pressure operated warning siren sounds, and explosion-proof switches stop all electrically operated equipment in the fire area. Doors and all ventilating ducts automatically close after thirty seconds to permit evacuation by employees . . . then the entire space is totally "flooded" with dry carbon dioxide gas, and in a few seconds the fire is extinguished, as the oxygen content of the air is diluted to a point where fire cannot exist.

C-O-TWO carbon dioxide built-in systems, hose reel units, portables and smoke detecting devices are engineered to give industry maximum, modern fire protection. Carbon dioxide, the fastest, non-damaging fire extinguishing agent, kills a fire in seconds. It does not deteriorate nor freeze and requires minimum attention. The experience gained by C-O-TWO engineers in supplying fire protection for Army, Navy, Coast Guard, Air Forces and industry is yours to command. Write for information.

C-O-TWO Kills Fire . . . Saves Lives

C-O-TWO FIRE EQUIPMENT COMPANY

NEWARK 1 NEW JERSEY

C-O-TWO

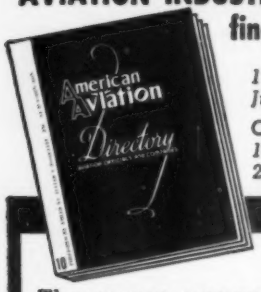
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ARMY E NAVY



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American Bldg., Washington 4, D. C.

(*Continued from page* 156)

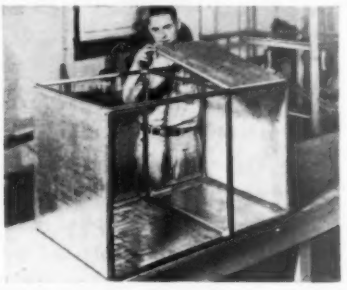
much broader field. This new light weight construction meets the need for applications where lighter weights are requisite and strength requirements are correspondingly lower.

Lindsay Struc-Lok, which is fabricated in both aluminum and steel, consists of



Consists of framing, sheets and fittings

only three basic parts: Framing, sheets, and fittings, yet its applications are almost unlimited. All parts are accurately die-formed by mass production methods in a wide variety of sizes. Assembly can be easily handled by men or women without special training, as all of the parts snap together by hand—no screws, bolts, rivets, or welds are required. The basic principle of Lindsay Struc-Lok assembly is as follows: Special fittings connect the framing and hold it together while the flanged



Slight pressure snaps sheets into channels

edges of the sheets are snapped into die-rolled frame channels. As the edges of the sheets snap into place they lock the framing and sheets permanently into position, providing an unusually strong light-weight unit with no space sacrificed for reinforcing braces.

Lindsay Struc-Lok is now available with sheets in 26 and 24 gauge steel and .020″ to .030″ thickness of 61 ST alloy aluminum. Perforated or expanded metal sheets may also be used. Openings, louvers, doors, and other conventional construction details are easily incorporated, and provision is made for using the framing to support shelving, hooks, machines, or other equipment.

Corner caps and decorative molding, which also snaps easily and permanently into place, give the completed Struc-Lok unit an attractive, machine-finished appearance.

GLASS CLOTH HANGARS

Glass cloth, woven of glass fiber yarns and coated with either synthetic rubber or resin, has been selected by the U. S. Army Corps of Engineers for curtains, side walls and ends in newly developed

(*Continued on page* 162)

Versatility Is This Jack's Middle Name

THIS Simplex Emergency Jack is unsurpassed for the number of jobs it handles safely and economically. In addition to lifting vertically, it pushes horizontally and lifts or pushes from any angle. Lifts on cap, on corrugated toe, on auxiliary cap shoe, or from any intermediate height by using the chain as a sling.

Double lever socket provides close quarter operation. Machine corrugated toe lift prevents loads from slipping off, even when jacking at an angle. Larger base area and better materials impart added safety.



Simplex No. 310A, 15-tons capacity, height 22″, lift 14″, toe lift minimum 2¼″.

Templeton, Kenly & Co.
Chicago (44) Ill.

Simplex
LEVER · SCREW · HYDRAULIC
Jacks

FOUR NUTS SNAP THE HARNESS ON 2,000 FIGHTING HORSEPOWER



For the Critical Jobs Snap-on Tools

Sweeping the stratosphere at better than 400 mile speed — screaming earthward in bomb dives — blasting tanks, locomotives, fuel dumps in low level strafing . . . Republic's deadly Thunderbolt handles diverse tactical assignments superbly well. The Thunderbolt is super-powered, heavily armed and armored . . . and its mighty engine is anchored with just four one-inch bolts. In this photograph a Republic worker tightens to solid security one of the four vital nuts . . . and does it easily, safely, swiftly . . . with the *right tool* for the job . . . a Snap-on heavy duty ratchet wrench.

Everywhere in industry Snap-on tools play an important part . . . dependable aids to fast, accurate workmanship in every phase of production, assembly, maintenance. Snap-on direct-to-user tool service is available through 38 branch warehouses located in key production centers. Write for 1945 catalog, and address of the nearest branch.

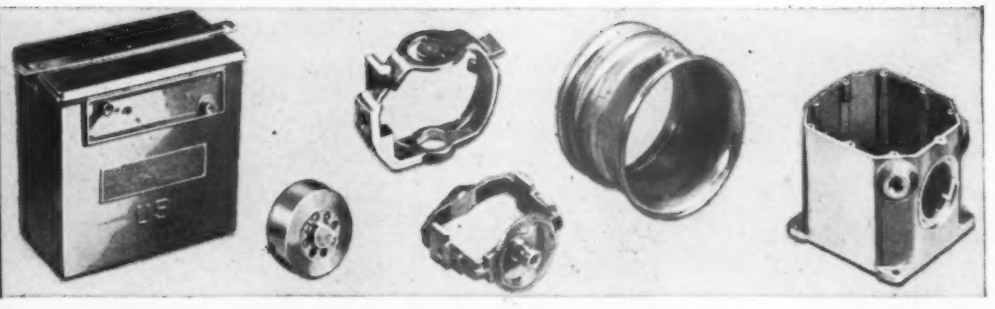


SNAP-ON TOOLS CORPORATION
8048-G 28TH AVENUE KENOSHA, WISCONSIN

Swaps

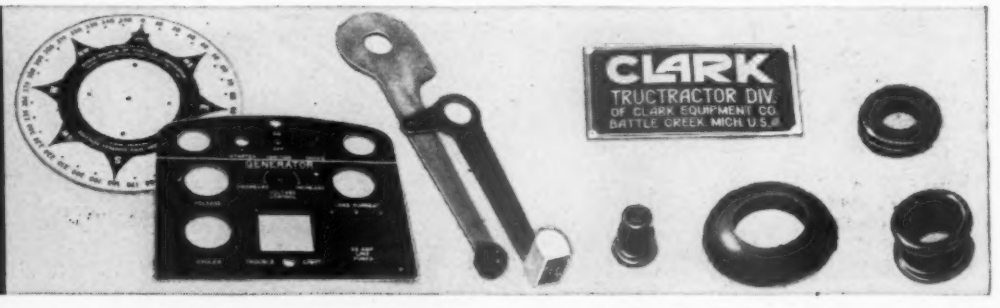
Die Castings

Manufacturing facilities are modern and exceptionally complete. They include trimming, precision machining, plating, painting, cronaking and anodizing.



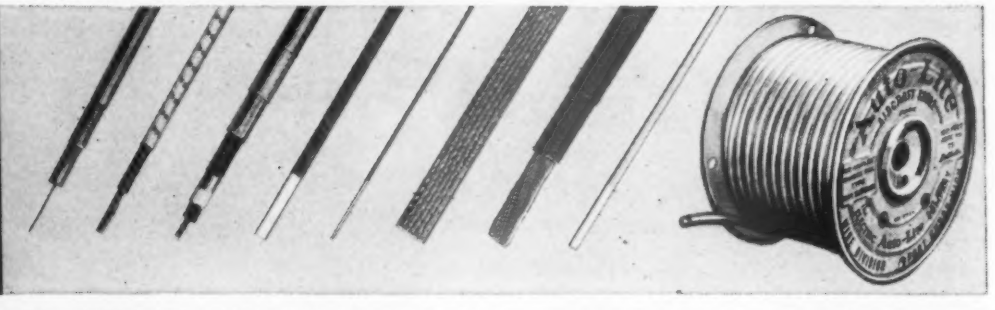
Plastics

All-plastic products, metals and plastic-metal combinations with various types of ornamentation are produced entirely under one roof at the Bay Division.



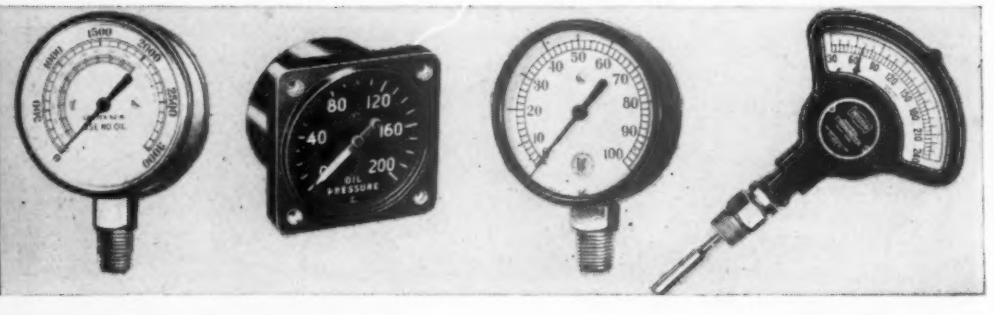
Wire and Cable

Wire and cable is available in a full range of sizes, shapes, materials and insulations including heat-resisting Vega Chromoxide enamel and other special types.



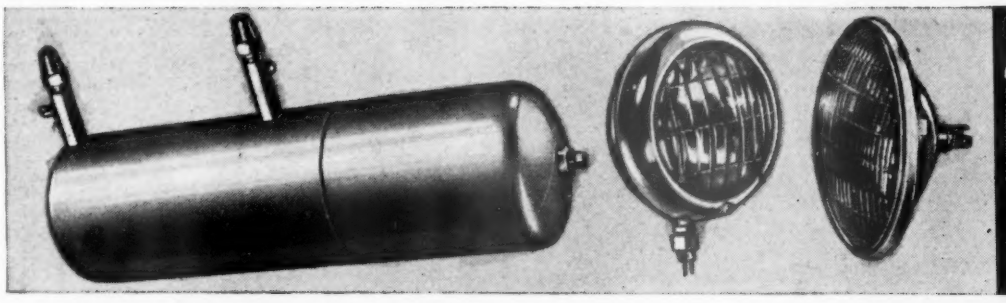
Instruments

A wide range of pressure gauges, tachometers, thermometers and speedometers, etc., is available from Auto-Lite for industrial, aviation and automotive use.



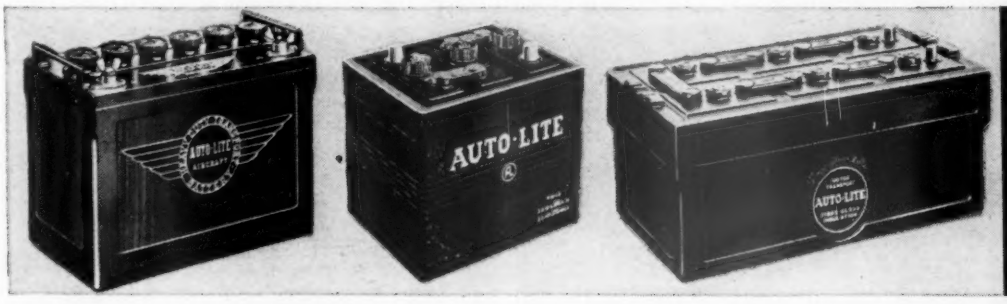
AUTO-LITE

AUTO-LITE can serve you



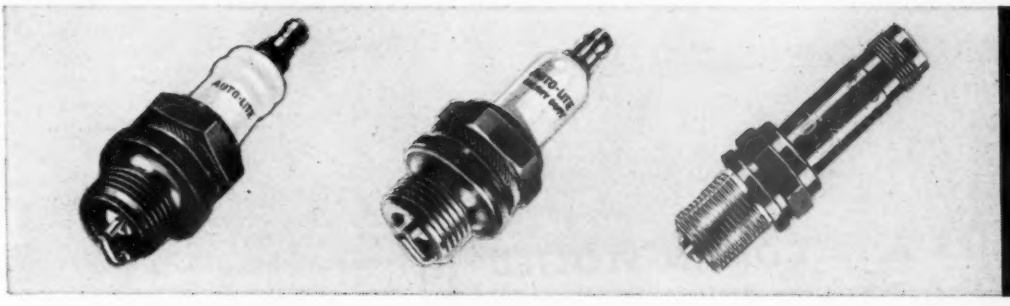
Deep Drawing

A fine example of Auto-Lite's unusual ability to draw steel is this refrigeration receiver. Auto-Lite is also a leading producer of automotive lighting.



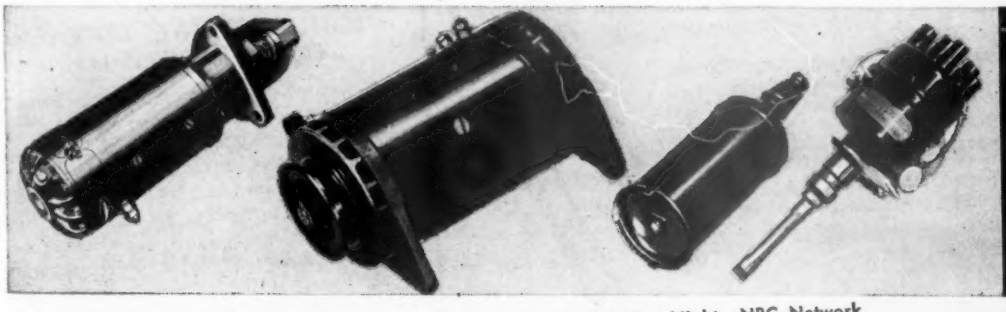
Batteries

Auto-Lite batteries are built in every type and size to fit various models of passenger cars, trucks, buses, stationary engines as well as aircraft.



Spark Plugs

Auto-Lite spark plugs are designed for use in automobiles, trucks, buses and aircraft and are engineered to work in harmony with the complete ignition system.



Electrical Parts

For thirty-three years Auto-Lite has been producing precision-built starters, generators, distributors and coils which are specified by many leading manufacturers.

Tune in "Everything for the Boys" Starring Dick Haymes—Every Tuesday Night—NBC Network

The products shown here are applicable to many industries. Address your inquiries about any of them to: THE ELECTRIC AUTO-LITE COMPANY, Toledo 1, Ohio . . . New Center Bldg., Detroit 2, Michigan—Tower Petroleum Bldg., Dallas 1, Texas—Chrysler Bldg., New York 17, N. Y.—1016-17 Halliburton Bldg., Los Angeles 14, Calif.—600 S. Michigan Ave., Chicago 5, Illinois—12 Richmond St., E., Toronto 1, Ontario—Canada.



Faster • Surer • Safer

Where speed counts — where security is vital — where safety is recognized — there you will find Corbin-Phillips Screws. The Phillips Recessed Head guides the driver to the center and holds it in a four-point steel grip. Screws go "clear home." No bit slips to mar the work or injure the worker. With hand or power driving, Corbin-Phillips Screws can do your job better — for less.

CORBIN-PHILLIPS AND CORBIN SLOTTED



Wood Screws, Machine Screws, Hardened Sheet Metal Screws, Self-Tapping Machine Screws, Stove Bolts. Aircraft Screws to government specifications . . .
Also — Steel Drive Screws, Lag Screws, Cap Screws, Set Screws, Hex Semi-Finished Nuts, Machine Screw Nuts, Escutcheon Pins and Chain.



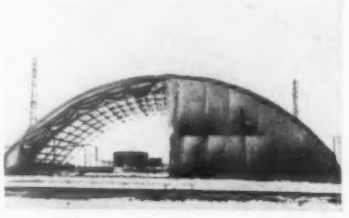
THE CORBIN SCREW CORPORATION
The American Hardware Corp., Successor
NEW BRITAIN, CONN. Warehouses: New York, Chicago

CORBIN
Screws Nuts Chain

(*Continued from page* 158)

airplane hangars installed at advance Army Air Forces bases.

Structural steel frame work and coated glass cloth are shipped to advance bases where the hangars are assembled for the A.A.F. Use of coated glass fabric for sections of hangars saves a great amount of shipping weight and speeds assembly of the hangars.



High strength and resistance to fungus feature glass cloth.

Glass cloth was selected because of its resistance to the effects of mold and fungus, high strength in proportion to its light weight, and ease of handling to fit around plane fuselages. Canvas duck, previously used, was subject to rot from tropical dampness and would not withstand fungus attack. In Arctic regions, canvas would become semi-rigid due to the extreme cold. Glass cloth has good weathering properties, and is not affected by tropical heat or Arctic cold.

Coatings used on the glass cloth include neoprene and vinyl compound. Glass cloth is supplied by Owens-Corning Fiberglas Corporation, Toledo, Ohio.

FREE SPRAY PAINTING COURSE FOR INDUSTRIAL FINISHERS

The DeVilbiss Company, Toledo, Ohio, will hold four one-week courses for industrial finishers in the second half of its 1945 School of Spray Painting. Session starting July 16th, September 17th, October 15th and December 10th, each covering the same classroom instruction and shop work, will be free to users of DeVilbiss Spray Painting Equipment.

Industrial finishers should write for reservations in any class at least two weeks in advance.

"BOTTLE DETECTIVE" UNCOVERS CRACKS IN GLASS JARS

A decided benefit to food processors and consumers alike was seen in an announcement by General Electric of the development of a photoelectric crack detector that inspects glass jars and bottles as they pass on a rotary turntable, automatically singling out and rejecting those that contain minute cracks or surface irregularities. Such flaws, if they were to pass unnoticed, might prevent airtight sealing and result in spoilage of the contents.

More accurate than a human inspector in uncovering defects in glass containers, this crack detector is also much more rapid. It inspects bottles as fast as they are made on a bottle making machine, which may be one or more every second.

(*Continued on page* 164)



Preformed wire rope

SAVES REPLACEMENT 3 WAYS

Since preformed wire rope lasts longer, obviously it reduces frequency of replacing the rope itself. Not quite so obvious, but equally important, is the ease with which preformed wire rope adjusts itself to different uses. Because of its ready adaptability—its resistance to rotating in sheave grooves and its better spooling qualities—preformed postpones the replacement of machine parts or shut-downs for repairing. A third way in which preformed wire rope saves replacement is with the men on the job. As preformed rope is safer to handle it reduces lost-time accidents. Make certain your next wire rope is preformed.

ASK YOUR OWN WIRE ROPE MANUFACTURER OR DISTRIBUTOR



More than
20 Portlands
in the U.S.A.!

WHICH Portland do you have in mind? The item you want to Express is valuable, to you and its consignee. Pause a moment! Take another look at the address and ask yourself — "Is this shipment clearly and securely marked?" A few moments spent in making sure can prevent unavoidable delays — and even loss. It is the address which guides the shipment to its destination. For further information, inquire of your local Railway Expressman. He is a good man to know.

BUY MORE WAR BONDS
RAILWAY EXPRESS AGENCY
NATION-WIDE RAIL-AIR SERVICE

(*Continued from page* 162)

and it detects even those flaws which are barely visible to the naked eye. General Electric, in collaboration with the Hartford-Empire Company, developed it especially for use in food packaging plants. In one such plant it was previously found that, on the average, 2 out of every 100 glass containers with flaws escaped detection by human inspectors.

In operation the detector rejects faulty containers without interrupting the continuous bottle making process.

★ ★ ★

41 GALLON DRUM WEIGHS 16½ POUNDS

Light tare weight of Leverpak fibre drums is demonstrated by this petite young lady in the Van Wert, Ohio, plant of Continental Can Company's Container



Drums are light and strong

Company Division.

Used for packing and shipping dry powders and other materials, the 41-gallon, 16½-pound drum shown here complies with Consolidated Freight Classification and Interstate Commerce Commission regulations.

★ ★ ★

PATENT GRANTED ON P&H ARC TIMER

A patent has recently been granted to Erwin C. Breckelbaum and Sol Oestreicher of the Harnischfeger Corporation of Milwaukee covering the basic functions of the P&H Arc Timer, for use in conjunction with the Production Welding Control System originated by that company, manufacturers of a complete line of arc welding equipment. The arc timer is an electric clocking device which, connected to the circuit of a welding machine, records the actual time spent by the operator in depositing weld metal. And the system itself is a means of controlling welding procedures, production, quality, and cost. Though relatively new, the P&H Production Welding Control System has found a ready acceptance by the welders themselves, providing as it does a just basis for compensation, whatever the wage plan.

"DIE-LESS" DUPLICATING
SAVES MAN POWER AND DELAYS!
DIE ACCURACY WITHOUT DIES
Send for CATALOG



O'NEIL-IRWIN MFG. Co.
DI-ACRO PRECISION MACHINES
"DIE-LESS" DUPLICATING
305 EIGHTH AVE. SO., MINNEAPOLIS, MINN.

A PROVED SURFACE GRINDING YARDSTICK



If you are feeling your way on some surfacing operation . . . seeking a wheel of the grain, grade and structure that will do the job as your "spec" requires—use the 846 K-1-V Dayton as your "yardstick".

You may find, as so many have found, that it's exactly the wheel you are looking for. If not, you will find it at least surprisingly "close" to what you've got to have. So close, in fact, that selection of the correct wheel can then be made without further experimentation.

To save time, money, worry—put this 846 K-1-V Dayton to the test now. Made in a wide range of sizes—with trial wheels shipped from stock.

WIRE, WRITE OR PHONE TODAY
SIMONDS WORDEN WHITE CO.
700 NEGLEY PLACE,
DAYTON 7, OHIO

"UNIVAN"

That Tough Steel



THEY STAND UP UNDER *SHOCK!* TOO

The head-on smash of these fighting Cape buffaloes ought to result in a couple of cracked skulls. But nature has endowed them with an anatomy that stands up under severe shock, just as advanced metallurgy has made "UNIVAN" the ideal alloy steel for castings which withstand unusual stresses and shock with notable lack of fatigue.

If your castings require these advantages specify "UNIVAN"—*that tough steel*—and take advantage of Union's long experience in whipping the "trouble jobs" of industry.

ARMY E NAVY

UNION STEEL CASTINGS

DIVISION OF BLAW-KNOX CO. PITTSBURGH, PA.

MAKERS OF Driving Wheel Centers, Locomotive Frames, Pump Casings, Vault Doors and Frames, Annealing Boxes, Spindles, Coupling Boxes, Open Hearth Charging Boxes, Gear Blanks — and other Castings for Steel Mills and General Industry.


SHELL RUST PREVENTIVES

STOP RUST BEFORE RUST STOPS YOU!

$1,000,000,000 per year—*one thousand million* dollars . . . that's RUST'S annual "loot" from industry!

Your share? **Actually, it's a lot more than you think—whatever your type of production. For Rust's "loot" is measured in depreciated machinery . . . in wasted time and materials . . . plus losses you can't even begin to calculate.**

There's only one way "out." That's . . . *Stop Rust before it starts!* Stop it before it stops you.

Use Shell Tellus Rust-Preventive Oils **to lubricate machines, wherever moisture is a factor. These Shell developed and perfected oils possess special rust-inhibiting qualities and, therefore, provide protection against the *formation* of rust. Furthermore, *these oils have been developed without sacrifice in other important characteristics.***

Use the new Shell Ensis Rust-Preventives **as protective coatings. They come in a complete line of oils, fluids, and compounds. The protective coatings formed range from thin, transparent oil films for use between machining operations to heavy, abrasion-resistant surfaces that stand up against weather and time.**

Call the Shell man now. **Let him study your operation, show you how to "stop rust!" Write, wire, phone: Shell Oil Company, Inc. 50 W. 50th St., New York 20, N. Y., or 100 Bush St., San Francisco 6, California.**

SHELL

...OILS...FLUIDS...COMPOUNDS

PLYWOOD

Pacific Mutual Door Co.

QUALITY PAMUDO SERVICE

National Distributors

DOUGLAS FIR PLYWOOD

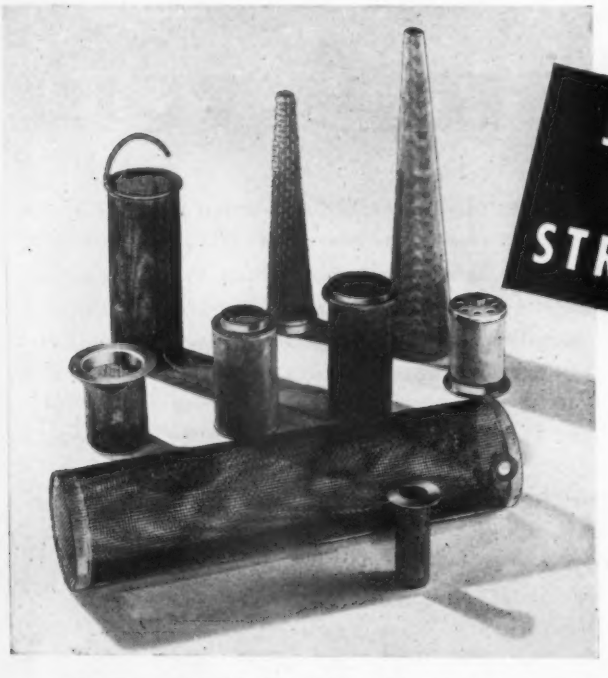
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Home Office: TACOMA 1, WASH.

Six Branch Offices and Warehouses

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GARWOOD, N. J. BALTIMORE 31, MD. LOS ANGELES 21, CAL.

WRITE US FOR PRICE LIST AND GRADE USE GUIDE



JELLIFF FUEL STRAINERS

OTHER JELLIFF PRODUCTS

●

SCREEN CLOTH
WIRE FILTERS
RESISTANCE WIRE GRIDS
AIR VENTS
DIPPING BASKETS

Jelliff has all the facilities for making fuel strainers. Wire drawing, weaving, and fabricating all in one plant — each step carefully watched by an inspector trained for that particular job. Rigid adherence to specifications and tolerances is guaranteed; AND SHIPPING SCHEDULES ARE MAINTAINED.

The C. O. JELLIFF MFG. CORP.
22 PEQUOT AVENUE · SOUTHPORT, CONN.

PALLET SYSTEM SPEEDS HANDLING OF SUPPLIES

Modern material handling and storage methods are responsible in no small degree for the facility with which myriad supplies are concentrated, warehoused, loaded and rushed to our armed forces all over the world.



Storing soft material by pallet loading

The illustration shows a Clark Fork Truck storing soft material by means of pallet loading at the great A.S.F. Depot of Ogden, Utah. The ease with which all classes of goods may be hoisted and stacked—by one operator—using vertical space to the ceiling, has not only cut man hours to a minimum, but has also saved the Government many millions of dollars in warehouse space.

The fork truck illustrated is manufactured by Clark Tructractor Division of Clark Equipment Company, Battle Creek, Michigan.

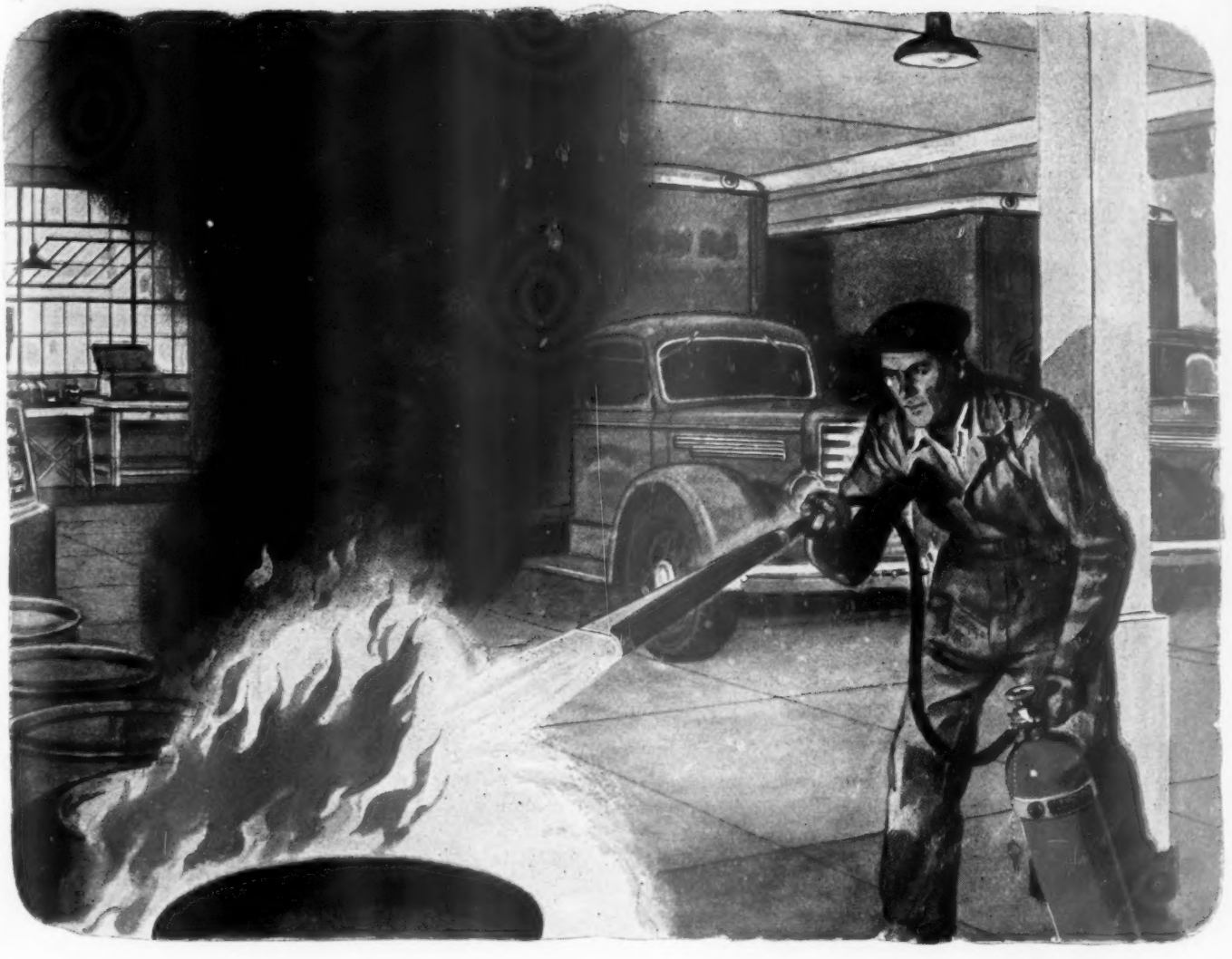
WIRE ROPE SLINGS TO BE REGISTERED FOR SAFETY

American Chain and Cable Co., Inc., Bridgeport, Conn., has recently announced on behalf of its two wire rope divisions, the American Cable Division and the Hazard Wire Rope Division, that their several types of wire rope slings may now be accompanied by a Certificate of Test and Registry for the benefit of the sling user. The policy of selling Registered slings is new to the entire wire rope industry.

There are several user advantages resulting from this Registered Service. All Registered slings are made from Preformed wire rope of Improved Plow Steel. All Registered sling terminals develop the full strength of the sling body. Many Registered slings will carry the new ACCO-LOC Safety Splice. The ACCO Certificate of Test and Registry furnishes a permanent record of the original strength rating of the sling, the safety factor upon which that rating was based, the actual proof load, and conditions of the sale. Each sling carries a metal tag which shows registry number, sling type, and maximum load rating.

This registered program includes all of the following types of wire rope slings—the conventional wire rope slings, braided wire rope slings and cable-laid slings. ACCO Registered slings are made with

(*Continued on page* 170)



Deadly to fire . . . and only to fire!

It's sudden death to flames, of course — in flammable liquids or electrical apparatus — but that's just *one* of the outstanding advantages of Kidde equipment.

Equally important: dry, inert carbon dioxide gas — the fast, sure extinguishing agent used in Kidde equipment — is *completely harmless* to materials and machines.

Carbon dioxide gas cannot contaminate or dilute valuable liquids. Used on electrical fires, it will not soften or water-soak insulation. It's a non-conductor too — there's no danger of short circuits, or of shock to the operator. And there's no after-fire mess to be cleaned up.

Kidde portable extinguishers for small, isolated blazes in flammable liquids and electrical equipment; wheeled units and built-in systems for major hazards — all are deadly to fire, and *only* to fire. The Kidde line includes the *right* kind of protection for every tough-fire hazard in the accompanying list . . . ask a Kidde representative for full information — he's skilled in the ways of fire protection.

* * *

KIDDE KILLS TOUGH FIRES *in Process Rooms, Ovens, Spreaders, Motors, Storage Rooms, Mixers, Coaters, Transformers, Dip Tanks, Agitators, Washing Trays, and Control Panels.*

The word "Kidde" and the Kidde seal are trade-marks of Walter Kidde & Company, Inc.

Walter Kidde & Company, Inc. • 140 Cedar Street • New York 6, N. Y.



Specify Air Express-High Speed for Low Cost

To prevent tie-ups or shutdowns, save man-hours, gain production time, serve customers — these are some of the reasons why you will find the speed of Air Express economically important to your business.

Shipments travel at a speed of three miles a minute between principal U. S. towns and cities, with cost including special pick-up and delivery. Same-day delivery between many airport towns and cities. Rapid air-rail service to 23,000 off-airline points in the United States. Direct service to scores of foreign countries.

AIR MILES	2 lbs.	5 lbs.	10 lbs.	25 lbs.
250	$1.04	$1.25	$1.57	$2.63
500	$1.11	$1.52	$2.19	$4.38
1000	$1.26	$2.19	$3.74	$8.75
2500	$1.68	$4.20	$8.40	$21.00



AIR EXPRESS

AIR EXPRESS

GETS THERE FIRST

Write Today for interesting "Map of Postwar Town" picturing advantages of Air Express to community, business and industry. Air Express Division, Railway Express Agency, 230 Park Avenue, New York 17. Or ask for it at any Airline or Express office.

Phone AIR EXPRESS DIVISION, RAILWAY EXPRESS AGENCY
Representing the AIRLINES of the United States

(*Continued from page* 168)

ACCO-LOC Safety Splice, Armored Loop, ACCO-U Loc, Tru-Loc and Socket Terminals. All these terminals develop 100% of the rated wire rope strength.

HARDENABILITY CALCULATOR

A new circular slide rule to be used in computing the approximate hardenability of steel from its chemical composition and grain size in accordance with



standard formulae has been designed by the metallurgical engineers of the Steel and Tube Division of The Timken Roller Bearing Company, Canton 6, Ohio. A free copy may be obtained by writing a request on your firm's letterhead.

GENERAL ELECTRIC ANNOUNCES PLANS FOR NEW RESEARCH LABORATORY

A new building for the General Electric Company's Research Laboratory, which will afford some 50 per cent more space than present facilities provide, will be erected near Schenectady, N. Y., at a cost of $8,000,000, according to President Charles E. Wilson. Construction will begin as soon as WPB approval can be obtained.

The site has been a private estate known as "The Knolls," and includes 219 acres. It is in suburban Niskayuna, about 4½ miles from the main plant and offices in Schenectady. Overlooking the Mohawk River, it is on a rocky cliff which will afford an excellent and solid foundation for the laboratory buildings. The river at this point forms part of the New York State Barge Canal, and the Troy branch of the New York Central runs along the bank, so there will be ample water and rail transportation available. In addition the river will afford a good supply of water for laboratory use.

The new building, in the general shape of the letter T, will vary from two to five stories in height and will include 200,000 square feet of laboratory working space in addition to an auditorium seating 300, a dining room, conference rooms, etc. One third of the laboratory space will be devoted to service facilities, machine shops and specialty shops such as glass blowers, all in a convenient central location.

Walls between rooms will be movable, capable of being placed at 18-inch intervals so that rooms may easily be made large or small as desired.



Since its formation in 1936, Staples has made tools primarily for the aircraft-engine manufacturer. It is conservative to say that many of the reaming jobs on the B-29 engines were done with Staples Reamers. Because—even in 1936—Staples Cutting Tools had the precision, the hardness, and the finish that tools used by the aircraft industry must possess. Now our greatly expanded facilities permit us to serve not only the aircraft industry but all metal-working plants in which full accuracy is appreciated.

Staples standard line of reamers, end mills, shell end mills and other circular carboloy tipped cutting tools are available from stock. But circumstances *do* change cases, and we are always happy—and competent—to make any special tools to specification upon request.

Staples Tool & Engineering Company
Cincinnati 25 . . . . . Ohio

Staples CARBOLOY-TIPPED CIRCULAR CUTTING TOOLS

REAMERS • CORE DRILLS • SPOT FACERS • COUNTERBORES • END MILLS • SHELL END MILLS • ALSO A COMPLETE LINE OF CIRCULAR SPECIAL TOOLS

AUTHORIZED DISTRIBUTORS

Albany, Sager-Spuck
Baltimore, L. A. Benson
Birmingham, Quinn & Quinn
Boston, Arthur A. Crafts
Brooklyn, A. N. Nelson
Buffalo, R. C. Neal
Charleston, Cameron & Barkley
(Branches, Jacksonville, Miami, Tampa)
Chicago, Screw Machine Supply
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Dallas, Machinery Sales & Supply
Denver, Mine & Smelter Supply
Detroit, Sterling Supply
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Syracuse, Syracuse Supply
Toledo, Mill & Factory Supply
Tulsa, Marshall Supply & Equipment
Waterbury, White Supply
Waterville, Harold W. Kimball

Among the ASSOCIATIONS

C. E. D. Meeting at Syracuse

Manufacturers Association and Others Join Purchasing Agents in Unusually Successful Meeting

That Purchasing Agents and their Associations can be a power of far reaching influence to their respective industrial communities, was ably demonstrated by the results attending the May 28th meeting of the Purchasing Agents Association of Syracuse and Eastern New York, at the Onondaga Hotel, Syracuse, which, under the leadership of Merton E. Jennings, Purchasing Agent for the Selflock Screw Products Co., East Syracuse, N. Y., was devoted to a discussion of the activities and aims of the Committee for Economic Development in its comprehensive program looking to full employment for American workers and profitable production for American industry.

Keen Interest Manifest

The meeting was a serious one, and that keen interest is manifest by industrial and political leaders in America's postwar problems was reflected in the cooperation of the Manufacturers Association. Mr. Jennings had previously discussed the matter with directors of that association, and evidencing its interest that the meeting should be a success because of its importance from a local standpoint, the association mailed invitations to all of its members and to some 200 other business men and civic leaders.

As a result, 178 attended the dinner. Of this number 71 were from the Purchasing Agents' group, the balance representing the Manufacturers' and other associations. The meeting was preceded by a cocktail party attended by directors of the Purchasing Agents Association and the Manufacturers Association.

The dinner meeting was described by one of the officers of the P. A. group as being "one of the most potent audiences the association has ever had." Seated at the head of the table were the president of the Manufacturers' Association, president of the Chamber of Commerce, president of the Junior Chamber of Commerce, Area Manpower Commissioner, superintendent of the U. S. Employment Service, chairman of the County C. E. D., and chairman of the Community C. E. D.

Basically, the meeting laid the foundation for detail planning, and future meetings. Since, the mayor of Syracuse who has taken a keen interest in the C. E. D. program, arranged for a meeting of a select group representing the civic, social, religious and business life of Syracuse, to discuss the problems involved. The letter of invitation to this meeting was signed by the mayor, the president of the Manufacturers' Association, the Community Chairman for C. E. D., and the president of the Chamber of Commerce. Incidentally, the C. E. D. Community Chairman is devoting his full time to the development of a practical program.

Regional Director Green spoke at length on postwar conditions and postwar plans at the dinner meeting. After his address he answered questions from the floor, suggesting that local problems be carefully analyzed, starting with case studies of plants including potential employment; analysis of wholesale and service trades, the construction industry; retail outlets, and civilian needs. He suggested the setting up of two- or three-men committees from each industry, the different local associations, parent-teacher groups, women's clubs, and other groups for the purpose of making a thorough study of the local situation, looking to the development of a composite of the whole and plans for action.

In response to the question as to how an employer could get across to labor the necessity for restraining increases, he suggested the feasibility of presenting to labor an exact picture of what a company is trying to do, the competitive phases of its business, and just what would be required for the employer to stay in business.

Postwar Analysis

Mr. Green said in part: "The political and economic situation of this country when hostilities cease can either give rise to a long-term growth of economic welfare and political democracy, or it can nurture economic disease and cumulative political disintegration. ***Though materially and spiritually poorer this country will probably emerge from the war still the richest and most influential nation of the world. We stand at the threshhald of amazing advances in the technology of industry and transportation. We hold such leadership in quantity of capital equipment and knowledge of technology as to be invulnerable to foreign competition in most lines, and notably in the making of metals and machinery."

On the asset side of the national ledger he placed such factors as a working force of about 62 million persons; an industrial plant valued at $120 billions, a quarter of which will be utterly modern; a large reservoir of cost-cutting techniques, new

(*Continued on page* 178)

HAROLD W. MACINTOSH HEADS NEW YORK ASSOCIATION

Harold W. Macintosh of L. O. Koven & Bro., Newark, N. J., was elected president of the Purchasing Agents Association of New York at the June 19 meeting of the association held at the Builders Exchange Club. Other officers elected are as follows:

First vice president, Frederic W. Thomas, Worthington Pump & Machinery Corp.;



President Harold W. Macintosh, P. A. A. of N. Y.

Second vice president, Harold G. Butterfield, National Union Radio Corp.;

Treasurer, Edward B. Fielis;

Members of Executive Committee: G. W. Howard Ahl, Columbia Ribbon and Carbon Mfg. Co., Inc., and Donald H. Lyons, Johns-Manville Corp., 3-year term; John F. Snedeker, Binney & Smith Co., 2-year term; Harold T. Moffett, 1-year term.

President Macintosh has been a member of the association for 21 years, has served the association in many capacities, completing in June a year's term as vice president and chairman of the Forum Committee. He has been purchasing agent for L. O. Koven and Bro. for 25 years, and is also a director of that company.



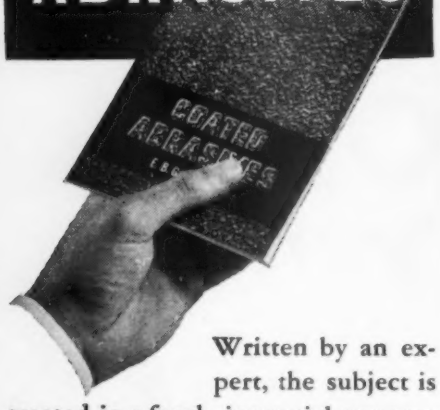
EDW. B. FIELIS
Treasurer

Vice President Frederic W. Thomas has just completed a years service as a

(*Continued on page* 182)


FOR YOUR TOUGHEST MATERIALS HANDLING JOBS . . . SPECIFY THE NEW
PHILCO "THIRTY"
-with 30% Longer Life!
The tougher the jobs, the better this new Philco "Thirty" Storage Battery shows up. For long ramps and heavy loads — Philco "Thirty" delivers the power. And — in addition — it gives 30% longer life! Write today for the new Philco "Thirty" catalog.
The new Philco "Thirty" for electric industrial trucks is identified by its distinctive red connectors.
PHILCO "Thirty"
PHILCO CORPORATION
STORAGE BATTERY DIVISION
TRENTON 7, NEW JERSEY
FOR 50 YEARS A LEADER IN INDUSTRIAL STORAGE BATTERY DEVELOPMENT

THE FIRST COMPLETE HANDBOOK covering the entire subject of COATED ABRASIVES



Written by an expert, the subject is treated in a frank, impartial manner, dealing only with facts applying to the entire industry.

It tells all about Abrasives in use, the backings employed, the various coatings and their uses, and the many commercial items available.

Consumers, engineers, buyers and salesmen have been waiting for such a handbook for years. *It tells the whole story.*

Sent free of charge if the attached coupon is filled out and sent to:

CLOVER MFG. CO.

Norwalk, Connecticut

Quality Abrasives and Performance Since 1903

SEND "COATED ABRASIVES" TO:

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*City*_____ *State*_____

P—7/43

165 at Fort Wayne Meeting on "Steel"

Gerald R. Smith, Indiana Service Corp., Fort Wayne, Ind., was elected president of the Fort Wayne Association of Purchasing Agents at the annual meeting of that body May 21st in the Chamber of Commerce. Other officers elected are as follows:

Vice president, Carl Jordan, Horton Manufacturing Company;

Secretary, Jack Printz, Essex Wire Corporation;

Treasurer, Laurie Wakefield, Minnesota Linseed Oil Paint Co.;

National director, Harold A. Berry, American Steel Dredge Co.;

Directors: Herb Buehler, Wayne Pump Co.; Louis M. Schwartz, Tokheim Oil Tank & Pump Co.; John Cooper, Paul Water Systems; and Richard Fisher, Columbia Woolen Mills, Columbia City, Ind.

The meeting was the fourth in a series of reconversion meetings, and was devoted to the subject of "Steel", and 165 members and guests attended, including 55 sales managers and representatives from all the steel manufacturers and the Chicago and Indiana warehouses. The presence of the large group of steel representatives was born of the desire to reacquaint buyers and sellers as an aid to solving reconversion problems.

President Harold A. Berry presided at the meeting, introducing Walter Walb, vice president of the Chamber of Commerce and Chairman of the Manufacturers' Committee who welcomed the "steel men" and thanked them for their part in successful local war production. N. F. Surbuch, regional manager, WPB, and honorary member of the Fort Wayne Association brought "WPB up-to-date."

Gladstone Hill, Carnegie-Illinois Steel Corp., spoke on the steel industry generally and introduced the sound-color film "Steel — Man's Servant."



OFFICERS AND DIRECTORS, FORT WAYNE ASSOCIATION

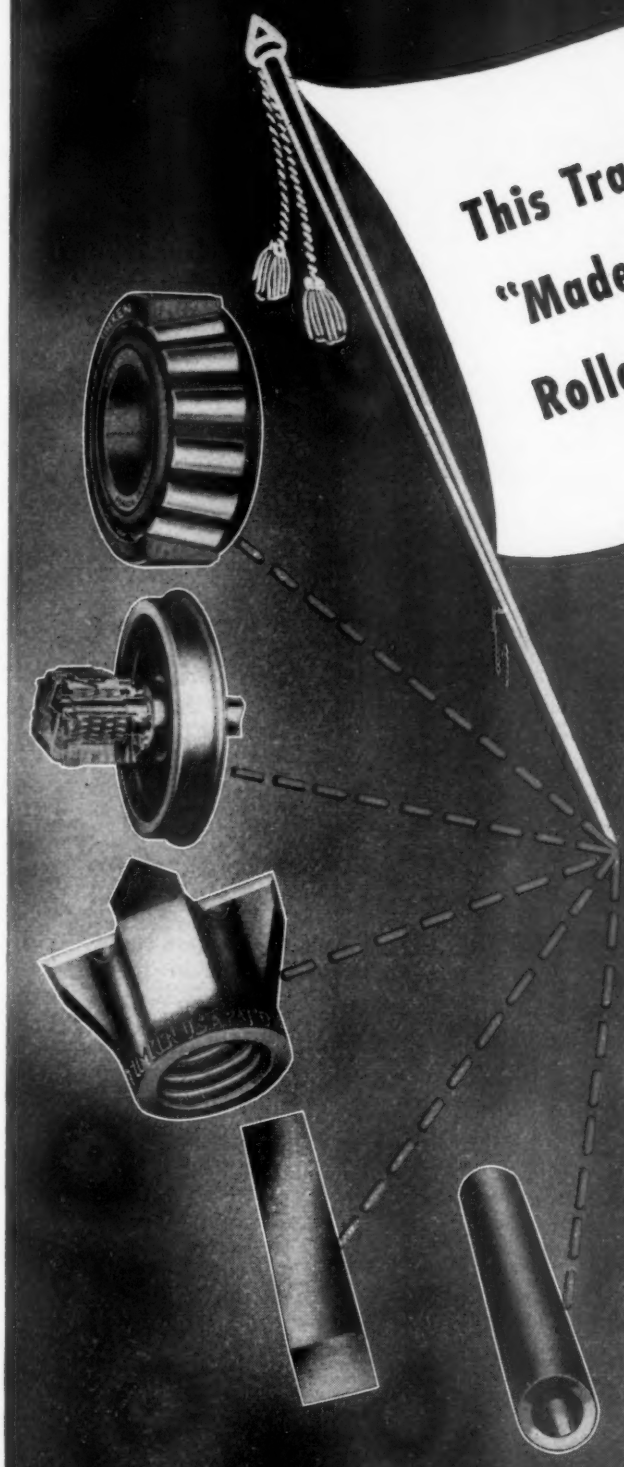
SEATED, L. to R.—L. Wakefield, treasurer; G. R. Smith, president; Carl Jordan, vice president. STANDING, L. to R.—R. R. Fisher, director; H. A. Berry, national director; H. Buehler, director; L. M. Schwartz, director.



Some 165 members and guests, including 55 sales managers and representatives from steel manufacturers and Chicago and Indiana warehouses attended Fort Wayne association's reconversion meeting on "Steel"

TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

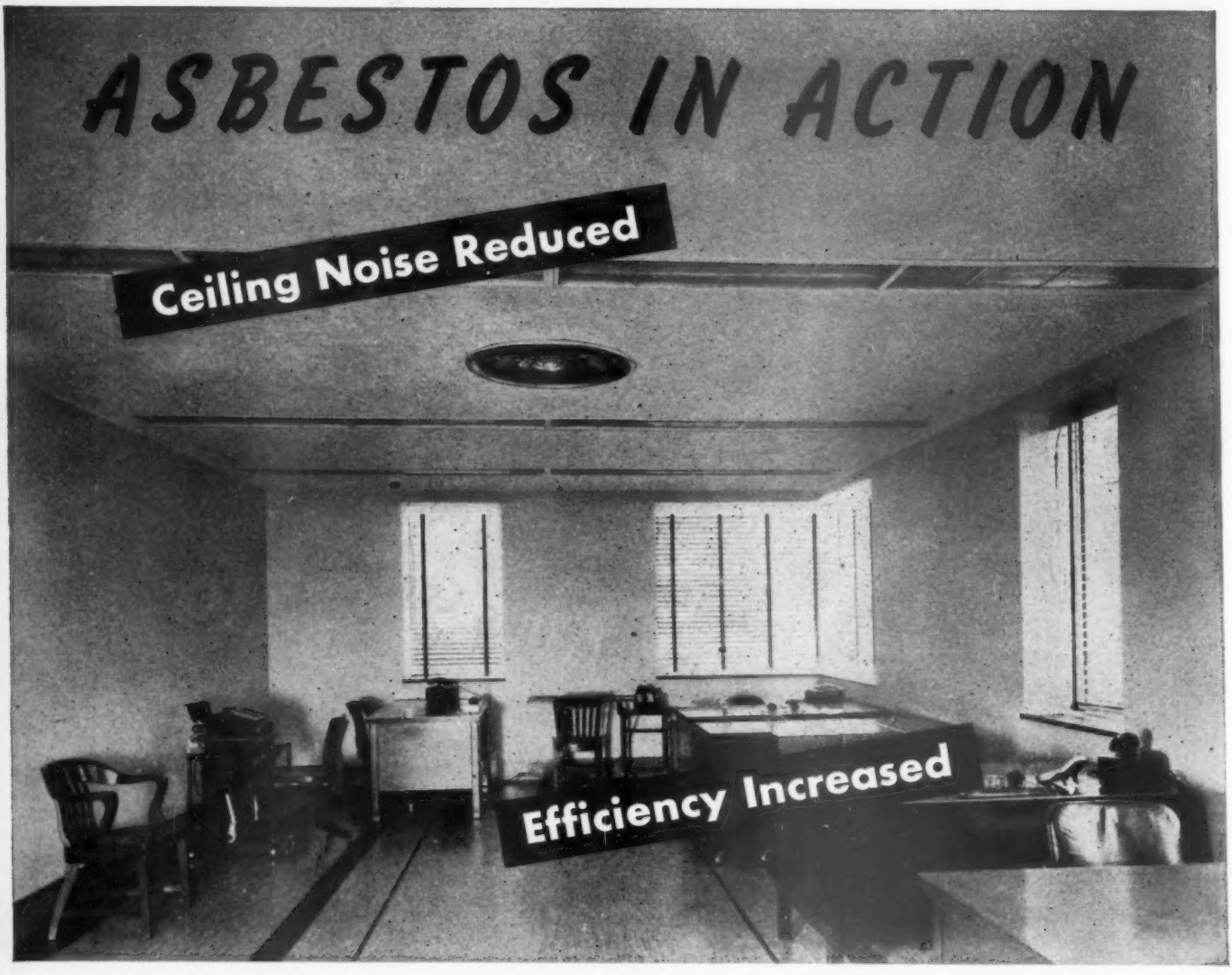


This Trade-Mark Means "Made By The Timken Roller Bearing Company"

Wherever you find it—on tapered roller bearings; alloy steel; seamless steel tubing; or rock drilling bits; it identifies a *genuine* Timken product with all that this implies—superior quality, performance and endurance.

These inherent advantages are not visible; they are revealed only in service, but you can be sure of getting them in full by making sure that the trade-mark "TIMKEN" is on every tapered roller bearing, every bar of alloy steel, every seamless steel tube and every rock bit you buy.

THE TIMKEN ROLLER BEARING COMPANY, CANTON 6, OHIO



Office acoustical problem solved by K&M Sprayed "Limpet" Asbestos

Three and a half years ago a "gun" sprayed a sound absorbing material on the ceiling of this office. Nerve-jangling noises were reduced by 70%. The efficiency of the entire office immediately increased.

This material was K&M Sprayed "Limpet" Asbestos, which, by its porosity, absorbs sound . . . by its diaphragmatic action, reduces it still further. This amazingly adaptable material goes on the most intricate architectural design as easily as plaster. It is ideal for acoustical treatment in laboratories, offices, engine-testing rooms —any place where working conditions can be improved by noise reduction.

Here are some of the advantages of K&M Sprayed "Limpet" Asbestos:

No cutting or fitting—completely covers, completely insulates—no seams, no joints, no holes. Easily applied—sticks tight to any clean surface regardless of shape or composition.

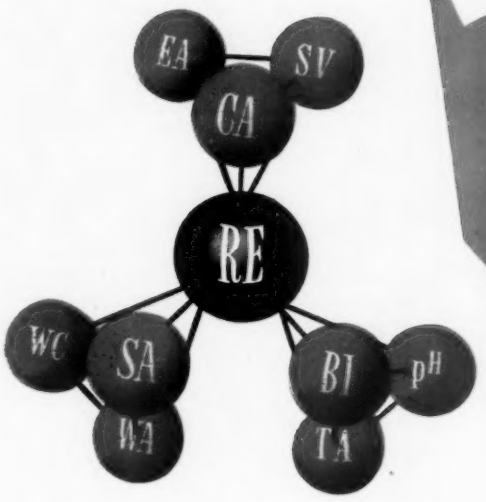
High noise reduction coefficient of .70 for a ¾" thickness.

Fire-resistant and heat-insulating—thermal conductivity .31 at 75° F.

Surface may be covered with as many as 10 coats of oil emulsion paint without seriously impairing efficiency.



KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA



Let Surface Chemistry* Solve Your Toughest Cleaning Problems

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Turco maintains a national staff of trained consultants to help you

Somewhere along the line in your business there is a conditioning, maintenance or cleaning problem—probably *many* problems—that can be solved faster, cheaper and more thoroughly thru application of *Surface Chemisty.*

Turco has spent two decades in developing and perfecting the science of Surface Chemistry. Today, this wealth of know-how is available to you from Turco's national staff of consultants. All you need do is wire, telephone or write to Turco. An expert in your field will be on his way at once.

* What SURFACE CHEMISTRY is:

WA—Wetting Action	CA—Colloidal Activity
EA—Emulsifying Action	WC—Water Conditioning
SV—Saponifying Value	BI—Buffer Index
SA—Solvent Action	PH—Energy of Alkalinity
	TA—Total Alkalinity

RE—Research and Experience, the combining factor that puts all the above elements into balance and to work on your specific problem.

TURCO

INDUSTRIAL CLEANING COMPOUNDS

There's a specific Turco compound for every one of these jobs in every one of these industries. Clip this list and use it for future reference.

AIRCRAFT MFG.—Removing grease, oil, rust. Paint stripping. Preparing surfaces for painting. Vapor degreasing. Paint booth maintenance. Equipment maintenance. Spot-weld etching. Rust prevention. Corrosion removal.

AIRCRAFT MAINTENANCE—Cleaning, polishing and waxing. Paint stripping. Preparing surfaces for painting. Cleaning and decarbonizing engine parts. Cleaning plastic glass. Corrosion removal.

AUTOMOTIVE MFG.—Removing grease, oil, rust. Paint stripping. Preparing for painting. Vapor degreasing. Paint booth maintenance. Equipment maintenance.

BOTTLING—Cleaning and sanitizing bottles. Descaling equipment and lines. Plant cleaning and sanitizing. Truck maintenance.

BUILDING MAINTENANCE (RESTAURANTS, INSTITUTIONS, HOSPITALS, SCHOOLS)—Floor cleaning, sealing, waxing. Sanitary supplies. Disinfectants. Dishwashing compounds Paint stripping. Wall cleaning and sealing. Metal polishing. Handsoaps. Laundry compounds. Boiler water treatments. Ventilating system corrosion inhibitors.

BUS, TRUCK AND AUTOMOTIVE MAINTENANCE—Cleaning engine parts Cleaning, polishing, waxing. Chassis washing and steam cleaning Remove oil, grease, dirt, rust, scale and carbon. Paint stripping. Preparing for painting. Garage maintenance. Rust and scale removal. Corrosion inhibiting for radiators. Corrosion preventives.

CONSTRUCTION—Concrete protection. Rust removal and prevention. Sealing concrete floors. Boiler treatments.

DAIRIES—Milk bottle and can washing Equipment washing. Cleaning and sanitizing dairy sheds. Building maintenance. Truck maintenance.

FOOD MFG.—Vat and tank cleaning. Equipment cleaning and sanitizing. Floor sealing. Disinfectants. Water softeners.

FOUNDRIES—Removing grease, oil, dirt, rust and scale. Etching. Equipment cleanmg. Rust prevention.

LAUNDRIES—Water conditioning. Soap builders. Sours Breaks. Spot removers. Sanitizing agents. Bleaches. Disinfectants.

METAL WORKING SHOPS—Removing grease, oil, rust, dirt. Rust preventives. Corrosion removal. Pickling acids. Pickling inhibitors. Descaling materials. Bright dip chemicals. Vapor degreasing Prevention of arc-weld spatter.

PAINT SHOPS—Masking materials. Paint booth protection. Floor protection. Spark inhibitors. Water curtain deflocculation. Paint stripping. Removing oil, rust, grease and dirt. Preparing metal for painting.

PETROLEUM—Removing rust, oil, grease, dirt. Special descaling solutions. Cleaning heat-exchangers. Preparing surfaces for painting. Boiler water conditioning. Cooling water conditioning. Rust prevention. Cleaning tanks, lines. Truck maintenance.

PLATING—Remove rust, oil, grease, dirt, scale. Pickling inhibitors. Pickling acids. Bright dip chemicals. Vapor degreasing. Water conditioning agents.

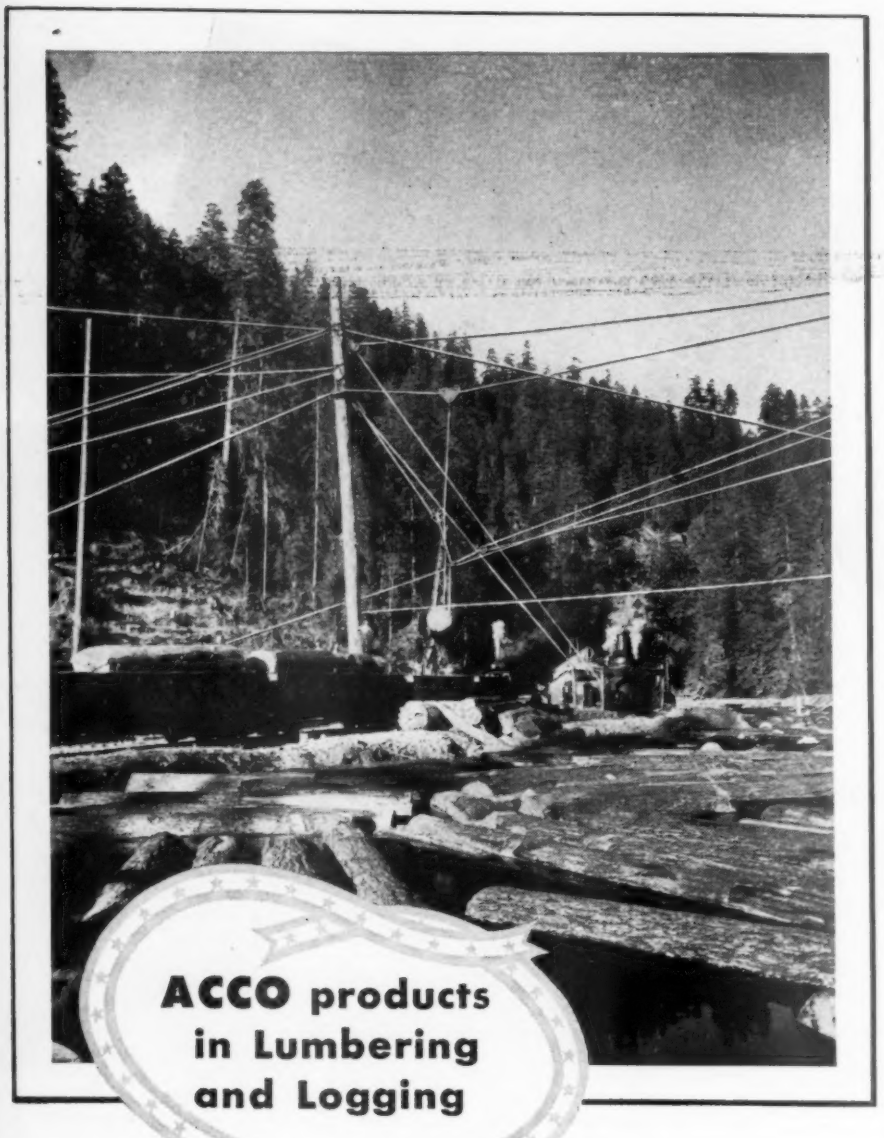
UTILITIES—Steam cleaning. Vapor degreasing. Chemical reclamation. Remove grease, oil, rust, corrosion. Corrosion prevention. Descaling. Boiler water conditioning. Cooling system conditioning and cleaning. Building maintenance. Sanitizing.

RAILROADS—Coach and locomotive and tank car cleaning. Paint stripping. Preparing surfaces for painting. Rust removal. Rust preventives. Building maintenance.

SHIP BUILDING AND MAINTENANCE—Removing grease, oil, rust and dirt. Paint stripping. Rust prevention and removal. Preparing surfaces for painting. Cleaning new boilers prior to use Protecting and cleaning equipment. Cleaning fuel oil lines and tanks. Descaling. Metal polishing. Boiler water conditioning. Dishwashing compounds. Sanitizing materials. Floor cleaning and waxing. Janitor's supplies.

Or write Turco, today, for full information on any of these items, applied to your particular problem.

TURCO PRODUCTS, INC. Main Office and Factory: 6135 S. Central Ave., Los Angeles 1, Calif. - Office and Factories: 125 W. 48th St., Chicago 9, Ill. 1606 Henderson St., Houston 1, Texas: - Offices and Warehouses: All Principle Cities



YOU'LL find ACCO products almost everywhere that men are at work—in factories, fields, mines and forests. In the lumber industry, for example, many ACCO products are indispensable. Their use begins in the woods with logging, continues with processing at sawmills, goes on until finished products are transported to market. The logging and lumbering industry uses five ACCO products: American welded chain, American Cable wire rope, Reading-Pratt & Cady valves, Wright hoists and cranes, Page welding wire.

These are only a few of the primary products made by the 15 divisions of ACCO—products vital in war, essential in peace: Chain · Wire Rope · Aircraft Cable · Fence · Welding Wire · Cutting Machines · Castings · Wire · Springs · Lawn Mowers · Bolts & Nuts · Hardness Testers · Hoists & Cranes · Valves.

ACCO

BUY WAR BONDS

AMERICAN CHAIN & CABLE · BRIDGEPORT CONNECTICUT

C. E. D. Meeting, Syracuse

(*Continued from page* 172)

materials; new civilian products; an enormous accumulation of demand for durable and semi-durable consumer goods backed up by at least $100 billions of liquid assets held by the public; demand for billions of dollars worth of producer goods by foreign countries; and a "less tangible but not less potent an asset will be a popular desire for economic and political freedom."

As "countervailing liabilities" he listed the liability of demobilizing the nation and finding jobs for 20 million war workers, 10 million men released from the armed services, and enough other persons to equal 9 million more individuals than ever worked before; the liability to recondition the unknown but large number of crippled and frustrated; the critical danger that people will clamor for premature abandonment of wartime price, rationing, wage and job-freezing controls before reconversion to a peace economy has been completed; the contingent liability that Americans will not know the conditions of maintaining an enduring free security to the detriment of free enterprise; the contingent liability that war will not have "taught us that freedom in the movement of capital, goods and people across the oceans and continents of the world is an essential prerequisite to durable peace."

Mr. Green listed some of the major problems, such as whether all war contracts should be instantly cancelled on V-Day; whether war time controls of business inventories and production should be cancelled immediately; government disposal of surplus materials; whether manufacturers should be permitted to trade in old plants for new ones, and wreck the obsolete construction capacity; the problems of relaxing wage controls, price controls, rationing, individual taxpayer relief, and others. "The individual American will have to know the correct answers to all of these questions when the United States faces peace", he said. "For he is the person who will say what policies shall be followed. These and other studies have been done by CED."

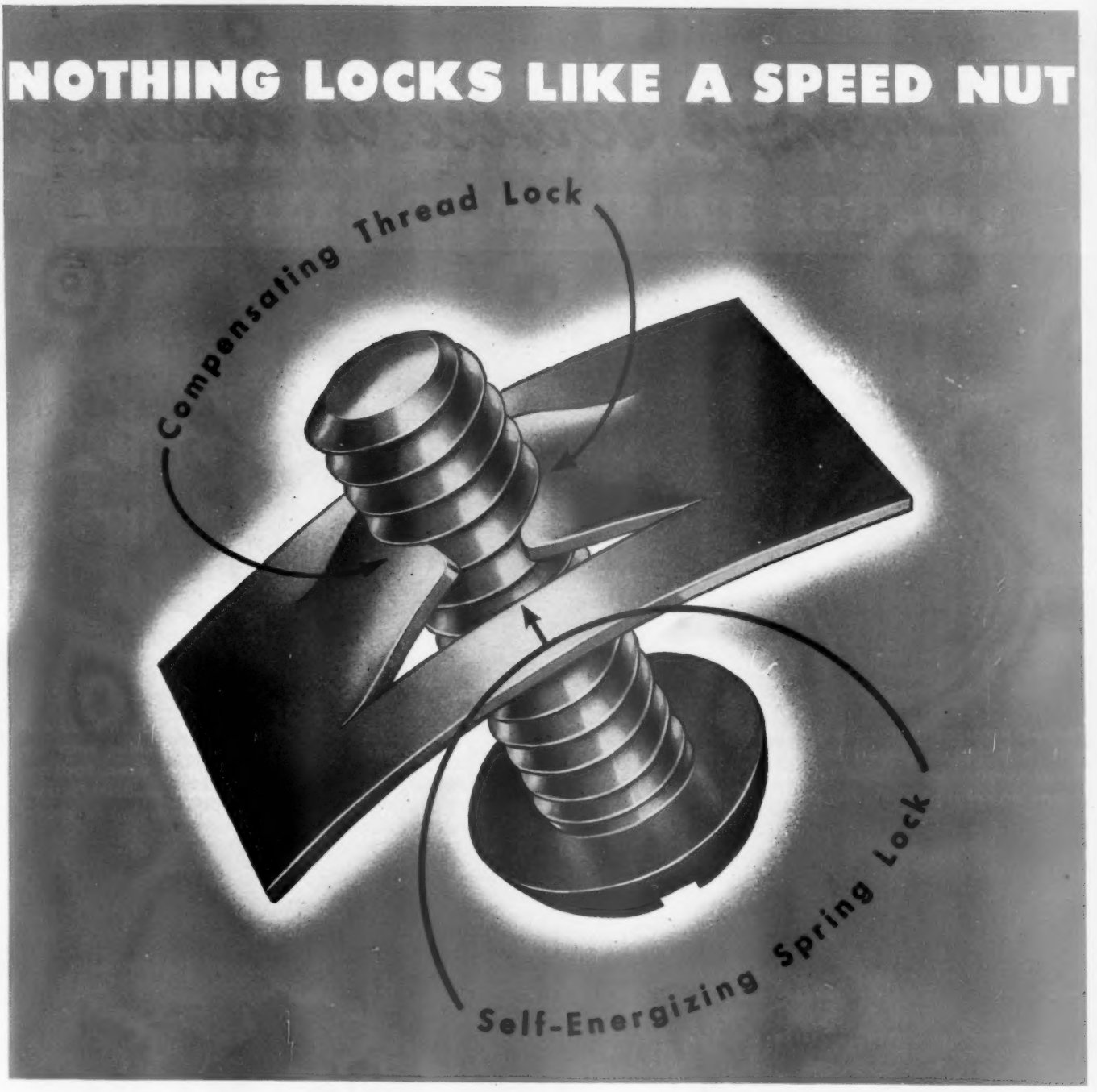
Concluding his talk, he declared, "It is clear that individual enterprise — traditionally the prime power of the American economy and the bulwark of a free society —will continue only if that system maintains high levels of employment and production."

The Purchasing Agents Association of Syracuse and Central New York has received many favorable comments on the meeting, and expressions of appreciation for stirring up local interest in the C.E.D. and postwar planning.

BUSINESS AFTER VE DAY BIRMINGHAM

Paul Henderson, local manager of the W. P. B. spoke on "Alabama Business after VE Day" at the May 24th meeting of the Purchasing Agents Association of Alabama held at the Redmont Hotel.

NOTHING LOCKS LIKE A SPEED NUT



SPEED NUTS are the only fastening devices that provide a COMPENSATING thread lock and a SELF-ENERGIZING spring lock. TWO distinct forces are exerted on the screw, as the SPEED NUT is tightened.

First, a compensating thread lock, the two arched prongs moving inward to engage and lock against the root of the screw thread. These free-acting prongs compensate for tolerance variations, and function perfectly on oversize or undersize screw or bolt threads.

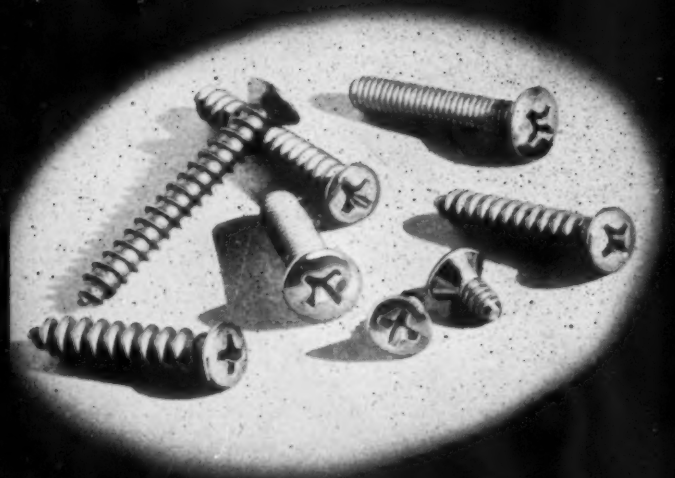
Second, a self-energizing spring lock, created by the compression of the arch in both the prongs and base. The combined forces of the thread lock and spring lock definitely eliminate vibration loosening.

SPEED NUTS, proven in pre-war commercial industry and now boosting the production of airplanes, are ready to assist you in the assembly of post-war metal, vitreous enamel, plastic or wood products. Literature is available on over 3000 shapes and sizes, for standard or special assemblies.

TINNERMAN PRODUCTS INC.
2050 Fulton Road Cleveland 13, Ohio

Speed Nuts
PATENTED
* Trade Mark Reg. U. S. Pat. Off.
FASTEST THING IN FASTENINGS

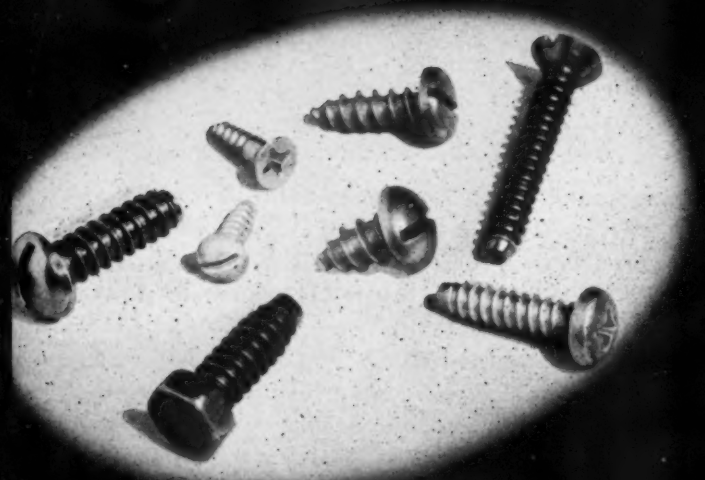
Prompt service is assured



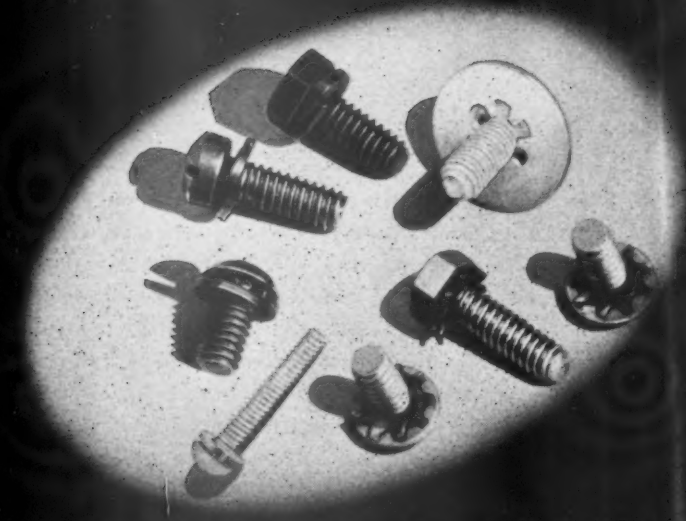
Phillips' Recessed Head screws are made in all sizes with both standard machine screw threads and thread-forming types. Hand or power-driven screw drivers do not slip out of recessed heads.



Round head, Flat head, Oval head, Oven head and Binding head machine screws and stove bolts are made by Lamson in a full range of sizes. Facilities are not confined strictly to standard products. Screws or bolts of special types or design are made in production quantities to specifications.



Lamson Thread-forming screws are made in three standard types for metal and plastic assemblies. Types "A," "C", and "Z" are available with conventional slotted head or Phillips' Recessed head.



Lamson Lock Washer screws are available in 8-32 to 5/16" diameters, and in lengths up to 1½", in all standard head styles. Shakeproof or helical spring washer types optional. Prevents lost washers, keeps inventory of screws and washers identical, and can be used in automatic hopper feed drivers.

. . . ON SUBSTANTIAL QUANTITIES OF MANY STANDARD TYPES AND SIZES OF MACHINE SCREWS

● Lamson & Sessions is now prepared with stocks of machine screws, lock washer screws and thread-forming screws—all with standard slotted heads or Phillips Recessed heads—to meet current orders.

These stocks are new, fresh products of our own manufacture and especially adapted to the needs of the electrical industry. Stocks we have are not inexhaustible but Lamson & Sessions' tremendous production facilities are expected to be able to maintain a steady flow to replenish these stocks as fast as they are drawn upon. To meet war production requirements, it was necessary to add a large quantity of new manufacturing equipment, and while our facilities are still concentrated on war production needs, we are able to produce these small types of screws in ever-growing volume.

Experience gained in the Lamson & Sessions manufacture of so many close tolerance and special aircraft parts, every one of exacting specifications, is reflected in an improvement in our general lines' quality.

Included in the facilities that Lamson & Sessions offers is a large and modern plating department where virtually all commercial finishes used on fastenings may be applied.

Lamson & Sessions invites your inquiries and will be glad to offer personal engineering counsel where desired for manufacture of production quantities of any type of fastening for immediate or post-war applications.

THE LAMSON & SESSIONS COMPANY, General Offices, Cleveland, O.
Plants at Cleveland and Kent, Ohio; Chicago and Birmingham



"BOLTS, NUTS & SCREWS"—1944 REVISION. Cloth bound. Limited edition, 180 pages of technical, practical information. Sent prepaid for *$1.00—cash or check must accompany your order.*

"BOLTS ARE IMPORTANT!"—24-page booklet of currently useful information for buyers of headed and threaded products, and describing Lamson & Sessions' specialty fastenings which have wide industrial applications *—now, and in the post-war period. Sent gratis.*

"THE LAMSON BLUE BOOK"—is our standard Catalog of standard products excepting our Aircraft products. *Sent gratis.*

"SIMPLIFIED STOCK LIST"—Of bolts, nuts and screws, conforming to latest revisions of the Office of Price Administration, and of great value in showing you in what ratio quantities of various standard products are kept in stock for deliveries, by your jobbers and in our own (and other bolt manufacturers') warehouse stocks. *Sent gratis.*

HERE'S A COUPON FOR YOUR CONVENIENCE

THE LAMSON & SESSIONS COMPANY • 1971 West 85th Street • Cleveland 2, Ohio

Please send us ☐ Lamson Blue Book ☐ Bolts, Nuts and Screws ($1.00)
☐ Bolts are Important! ☐ Simplified Stock Sizes
Send information on ☐ Cap Screws and Set Screws ☐ Cotters
☐ Bolts ☐ Machine Screws ☐ Lamson Lock Nuts
☐ CP,HP,SF Nuts ☐ Lock-washer Screws ☐ Self-Tapping Screws

Name of Individual _____ Title or Kind of Work

Employed by (Name of Company) _____

Street Address _____

City and State _____

No. 1934—Copyright 1945—The Lamson & Sessions Co.

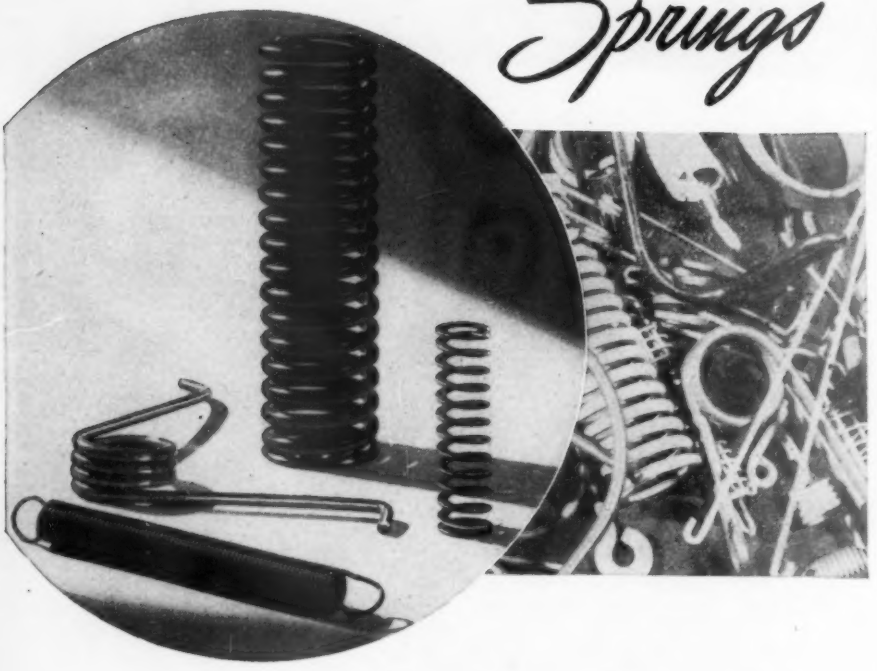
LAMSON & SESSIONS

BOLTS · · NUTS · · COTTERS · · CAP SCREWS · · SPECIALS

Your Jobber Stocks the Lamson Line



The most expensive *Springs*



are rarely the best!

because the "best" springs for any given purpose are the simplest and most inexpensive springs which will perform their function and give the desired durability.

A factor of the greatest importance in securing the best springs for any application involving dynamic conditions, is early and expert study of operating conditions by Cleveland spring specialists, not only before a new machine is built, but before preliminary plans are frozen into final plans. For at this early stage, improvement in the design of springs, working space and related parts may be made with the least trouble and expense, often at an important saving in cost.

When time permits, it is also possible to make up sample springs in advance and test them under working conditions, absolutely insuring satisfactory performance and avoidance of trouble later.

These services are yours for the asking, without cost or obligation on your part.

Cleveland SPRINGS

CLEVELAND WIRE SPRING CO.

1281 East 38th Street, Cleveland 14, Ohio

Macintosh Heads New York Assn.

(*Continued from page* 172)

member of the association's executive Committee. He has been associated with the Worthington Pump & Machinery Co. at Harrison, N. J. for the past ten years.

Vice President Butterfield has served on the Executive Committee for two years, and also served as chairman of the Attendance Committee and chairman of the New Members Committee. He joined the National Union Radio Corp. as Assistant Purchasing Agent in 1929, and is now director of Purchases for the Company's plants.

Treasurer Edward B. Fielis has served in the office of treasurer for the past 21 years, and has been a member of the association for thirty years.

J. H. Leonard is executive secretary of the association with headquarters at 120 Broadway, New York.



Executive Secretary J. H. Leonard
New Yo:k Association

The May 15 meetings were featured by a discussion on Materials Handling at the afternoon Forum, the speakers being W. E. Braithwaite, Chief, Containers Packaging & Miscellaneous Section Division of Simplified Practice, Washington, who talked on Simplified Practice, Its Purpose and Application; and Raymond L. Smith, Lightner & Smith, Materials Handling Engineers, who talked on "The History of Industrial Trucks and Post-War Materials Handling." A motion picture was shown depicting the handling of materials at one of the ammunition plants where radical reductions were brought about in car unloading by the means of mechanical equipment. Statement was made at this meeting that labor costs are not likely to come down, and that any reduction in material costs would have to come largely from reduced handling costs.

C. Scott Fletcher, Executive Director, Committee for Economic Development, was the principal speaker at the dinner meeting. He explained that the C. E. D. is made up of prominent business organizations, and that it has for its primary objective the maintenance of full employment and production by private enterprise. He said that the wheels of industry cannot turn until it gives the green light to the Purchasing Department, and this of course is dependent upon Washington giving management the green light to go ahead. The Purchasing Agent, he said,

(*Continued on page* 184)

You can Employ

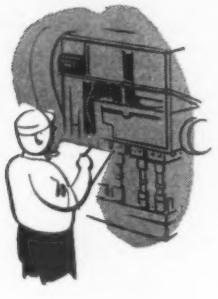
Veeder-Root Devices





as Salesmen . . . as well as

Production "Countrollers"



Veeder-Root Devices can do an outside job of sales-building for you, as well as an inside job of production-building. They can be easily designed and built into your products as an *extra service* that can be effectively merchandised to your prospects and customers . . . in terms of the same advantages you get from the *Count*rolled production machines in your own plant: avoidance of delays, errors, lags, shortages; ability to schedule production more efficiently.

Veeder-Root Devices are compact...have simple drive-connections . . . come in types to fit into the design limitations of your present or postwar products, without necessitating basic design-changes. So why not send this memo *now* to your sales and design engineers: *"Investigate advantages of designing Veeder-Root Devices into our products."*

The Counting House ARMY-NAVY E *of Industry*



VEEDER-ROOT INC.

Hartford 2, Connecticut

In Canada: Veeder-Root of Canada, Ltd., Montreal
In England: Veeder-Root Ltd. (New address on request)

Washers and Stampings

ALL KINDS—FOR ALL PURPOSES!

No matter what your requirements may be . . . washers of any size or shape, any material or finish, in any quantity . . . we can *supply* or *make* what you want. Over 22,000 sets of dies available for producing standard and special sizes.

Our facilities are at your service.



WROUGHT WASHER MFG CO.

WORLD'S LARGEST PRODUCER OF WASHERS

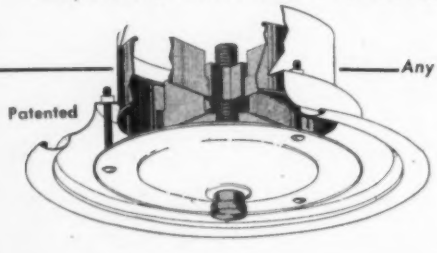
2113 SOUTH BAY STREET • MILWAUKEE 7, WISCONSIN

How to control supply-air diffusion

to meet specific job requirements and occupant desires

Direction and volume of air discharged by every KNO-DRAFT Air diffuser can be adjusted quickly and accurately at any time for system balancing, ceiling heights, seasonal requirements, temperature differentials and the desires of the occupants.

Any desired condition at your finger tip.



KNO-DRAFT *Type K*
Adjustable Air Diffuser with Type D Volume Damper

By simply turning the air adjustment screws (easily accessible from under the unit), the inner cone may be raised or lowered to secure any angle of air direction required. The built-in volume damper (regulated by the hand-turning knob) varies the air outlet aperture uniformly without affecting the outlet velocity or diffusion pattern.

Free Handbook: *Contains clear sketches, charts, dimension prints and instructive text that simplifies the selection and installation of air diffusers. Write Dept. F-4.*

W. B. CONNOR ENGINEERING CORP.

Air Diffusion *Air Purification* *Air Recovery*

114 E. 32nd Street — New York 16, N. Y.

(*Continued from page* 182)

is probably faced with more difficult problems than any other man in business. He has a stupendous task to perform so that industry can get into the reconversion period quickly on a high level of production.

Mr. Fletcher declared that no one knows the answer to the problem of how many jobs will be needed or available. The number ranges from 50 to 60 million. The large percentage of jobs must be found in private enterprise, for jobs stem only from the production and profitable distribution of goods and services. If the problem is left to government to handle, Mr. Fletcher declared the result would be increased taxes and possible loss of free enterprise.

Concluding his talk he said, "When the history of this war is written, I know that the contributions made by industry will be traced back to the Purchasing Agent for it was the Purchasing Agent who was able to get the material necessary to keep the wheels of industry turning, under the most unusual conditions."

ALFRED H. SCHULTZ, JR. HEADS BALTIMORE ASSN.

The following officers were elected for the year 1945-46 at the regular monthly meeting of the Purchasing Agents Association of Baltimore, held May 16:

President, Alfred H. Schultz, Jr., Revere Copper & Brass, Inc.

Vice President, Lester H. Palmer, Koppers Co., American Hammered Piston Ring Division.

Treasurer, William J. Young, The Baugh Chemical Co.

Secretary, Anthony J. Peroutka, Federal Reserve Bank.

Executive Committee: William Franz, J. S. Young Co., 1948; William R. DeGrafft, J. S. Young Co., 1947; Charles C. Copenhaver, Eastern Rolling Mills Co., 1946.

National Director, J. Herbert Gaston, City of Baltimore.

Alternate national director, Lingard I. Whiteford, Maryland Glass Corporation.

HUMOR OF BUYING AND SELLING BUFFALO MEETING

Arthur G. Hopcraft of Cleveland, past president of the National Association of Purchasing Agents, was guest speaker at the June 13 meeting of the Purchasing Agents Association of Buffalo. His subject was "The Humorous Side of Buying and Selling."

BELL RE-ELECTED PRESIDENT OF FORT WORTH ASSOCIATION

Walter Bell, Purchasing Agent Tarrant County, Fort Worth, Tex., was reelected president of the Purchasing Agents Association of Fort Worth at the annual meeting of that body. Other officers elected are: E. T. Bagley, Fort Worth Paper Co., first vice president; W. A. Blessing, Jahns Supply Co., second vice president; S. J. Johnston, Acme

(*Continued on page* 188)

A few simple rules to conserve carbide tools

FIRTHITE FIELD SERVICE POSTERS are available for display in your plant



The conservation of carbide tools through proper handling and correct usage is essential not only in war time but at any time for best production results and low operating costs.

These Firthite field service posters will help remind your plant operators in simple, easy-to-take, understandable manner, of the right way to make carbide tools do their utmost.

Fill in and mail the coupon for your set of these free, 17" x 22", four-color posters.

Firth-Sterling
STEEL COMPANY
OFFICES: McKEESPORT, PA. • NEW YORK • HARTFORD • PHILADELPHIA • PITTSBURGH • CLEVELAND • DAYTON • DETROIT • CHICAGO • LOS ANGELES



FIRTH-STERLING STEEL CO., Dept. P—McKeesport, Pa.

Please send us without obligation on our part_____sets of Firthite Field Service Posters which we wish to display in our plant shops.

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____



BET YOU NEVER HEARD THIS ONE!

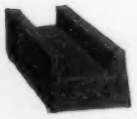
This is a story of noise abatement. It's about a manufacturer who discovered an easy, inexpensive way to banish the clang and rumble from domestic stokers – and thereby give them "buy-appeal" they never had before.

The trick was turned simply by applying Spongex* Molded Cord to parts where metal met metal. By cleverly gasketing with this soft, lively material, sound was hushed to a whisper – vibration reduced to the vanishing point. And the cost per unit for Spongex Cord was little more than you'd gladly pay for a package of your favorite cigarettes (if you could buy 'em!).

The point of this stoker story is obvious: You may have a similar problem in your own product. If it isn't noise or vibration, it may be sealing, insulating, or cushioning. You'll find Spongex Cord ideal for all these purposes. This versatile material has more "angles" than a Norden bombsight! It can be compounded to resist gasoline, oil and corrosive chemicals. Under repeated or prolonged compression, it springs back to its original shape.

Spongex Molded Cord is only one of a legion of products representing more than two decades of development in cellular rubber. You can use cellular rubber to advantage – and profit! Just give us a description or sketch of your problem. Sponge Rubber Products Co., 132 Derby Place, Shelton, Conn. Plants in Derby and Shelton, Conn. Sales Offices: New York, Chicago, Washington, Detroit.

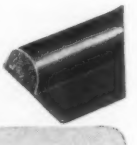
*Trade Mark Reg. U. S. Pat. Off.



Full and half-round cord or tubing and molded strips in various shapes for any sealing or gasketing job.



Spongex is a resilient, flexible blown form of rubber available in soft, medium and firm densities.



SPONGE RUBBER PRODUCTS CO.

WORLD'S LARGEST MANUFACTURER OF CELLULAR RUBBER AND BONDED FIBRE PRODUCTS



Milling jaws on the hub of a partially cut spur gear.

If We Used All The Gears We Made—

We could not build them better than we do. And if we built equipment, we would demand that every gear we bought was made the way we make them. Years of experience with hundreds of equipment builders have given us a sixth sense in knowing their requirements.

A vital part like a gear can make or break the reputation of a machine, so we furnish gears that definitely enhance the quality of the equipment of which they become a part.

The Illinois Gear trademark on your gear means it's a "Five Star Gear" ★ Material double-checked. ★ Cut by a highly skilled craftsman. ★ Required accuracy inbuilt. ★ Double-inspected after completion. ★ Delivery as promised.

Our Catalog No. 39 will help you—it covers gears, their types, use and manufacture.

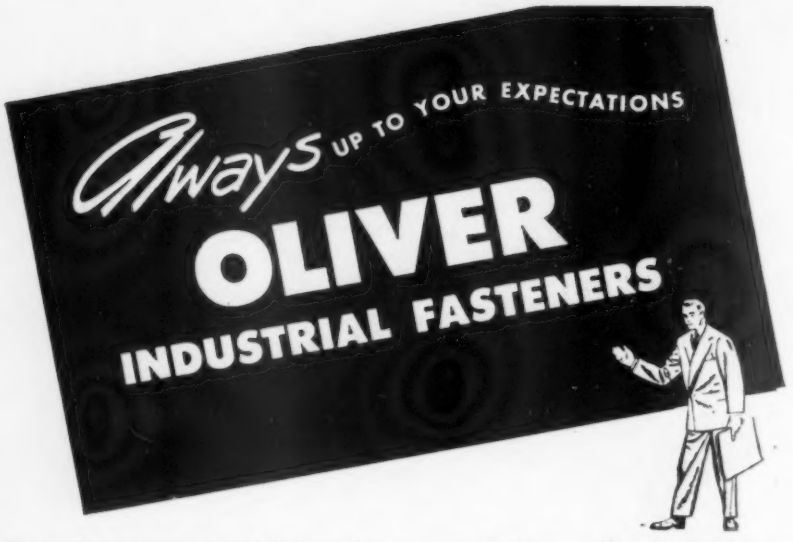
ILLINOIS GEAR & MACHINE CO., Chicago (35), Ill.

ILLINOIS GEARS

ARMY ★ E ★★ NAVY

"The mark on Finer Gears"

ILLINOIS GEAR & MACHINE COMPANY



Whatever your requirements for bolts, nuts, rivets or cap screws, you will find that Oliver Fasteners measure up to your highest expectations.

Made by one of the oldest and largest manufacturers of industrial fasteners, Oliver products represent the most modern ideas in design and manufacture. We offer a complete range of sizes and types, with materials, heat treatments, protective coatings and other specialized features to meet your particular needs.

Our nearest district representative will gladly help you solve your fastening problems.

Bolts

Square and hexagon head machine bolts, carriage bolts and a wide variety of types for particular applications. Rolled or cut threads; black, milled or ground body. Special types for high temperature applications. Sizes up to 2½ in. diameter.

Rivets

Sizes up to 1¾ in. diameter, all commercial heads and lengths. Materials include low-carbon steel, boiler steel, structural steel, copper-bearing steel, wrought iron. Annealed, high strength, close tolerance and other special properties where desirable.

Nuts

All regular types of nuts including square, hexagon, castellated, slotted, cold punched, hot pressed, double chamfered, semi-finished. Carbon steels, alloys, non-ferrous. Sizes up to 2 inches bolt diameter.

Cap Screws

Oliver Cap Screws meet your most exacting requirements for accuracy, uniformity and highest quality. Our long experience in the manufacture of headed and threaded products, gives the knowledge and skill necessary to produce dependable cap screws.

OLIVER
IRON AND STEEL
Corporation

SOUTH 10th and MURIEL STREETS · PITTSBURGH 3, PA.

(*Continued from page* 184)

Brick Co., secretary-treasurer.

Committee chairmen for the 1945-46 term are as follows: Attendance Committee, Bert Pritchett; Membership Committee, Buyrl Wilson; C. E. D. Committee, R. W. Seipel; Publicity Committee, Carl Wuerpel; Sunshine Committee, A. C. Shepherd.

F. G. BURTON HEADS UTAH ASSOCIATION

The following officers were elected at the annual election of the Purchasing Agents Association of Utah at the May meeting in the Temple Square Hotel, Salt Lake City:

President, F. G. Burton, Board of Education, Granite School District.



President F. G. Burton, Utah Assn.

Vice president, Herbert Weindel, Union Pacific Railroad Co.

Secretary, O. W. Kasteler, The Lang Company.

Treasurer, John E. Carr, Z. C. M. I.

National Director, R. J. Close, Tribune-Telegram.

During the past year Mr. Burton served as treasurer of the association, and previously was active on various committees.

Mr. Carr reports that recent association educational activities included an illustrated lecture on South Africa by Richard E. Folland, and a trip through the Hill Field army depot 25 miles north of Salt Lake City to which fighter planes and bombers are returned for repairs.

GERALD A. SELBY HEADS LOS ANGELES ASSOCIATION

Gerald A. Selby, Purchasing Agent for the Los Angeles Chemical Co., was elected president of the Purchasing Agents Association of Los Angeles, at the association's annual meeting on May 10th. Other officers elected are as follows:

First Vice President, Larry T. Bleasdale, Purchasing Agent Zellerbach Paper Company.

Second Vice President, Al B. Tietjen, Southwest Welding & Manufacturing Co.

Secretary Dean L. Fisk was awarded a Southern California.

National Director: Al R. Lama, Arrowhead and Puritas Waters, Inc.

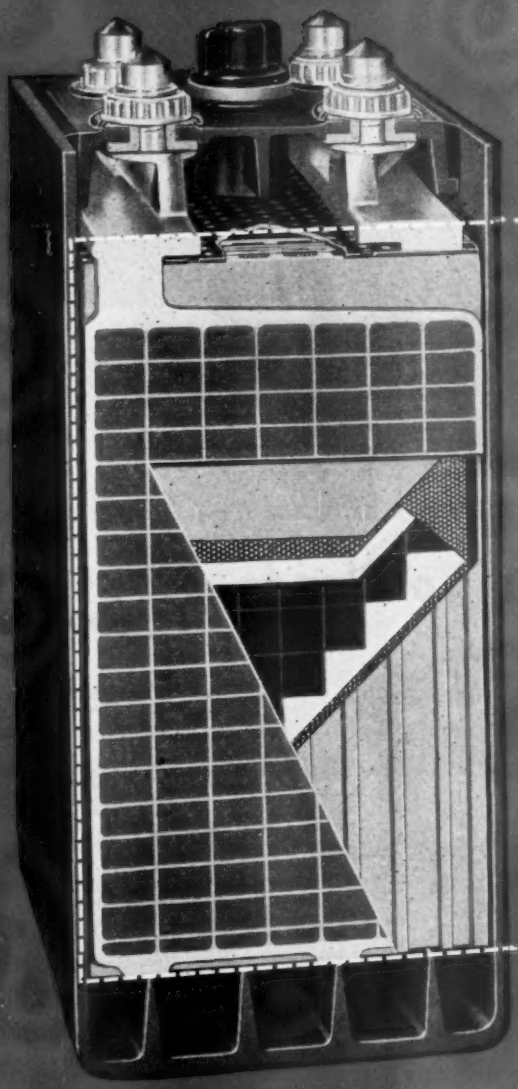
Directors: Charles C. Harvey, City of Pasadena, and Burt M. Pulver, Barker Bros. Corporation.

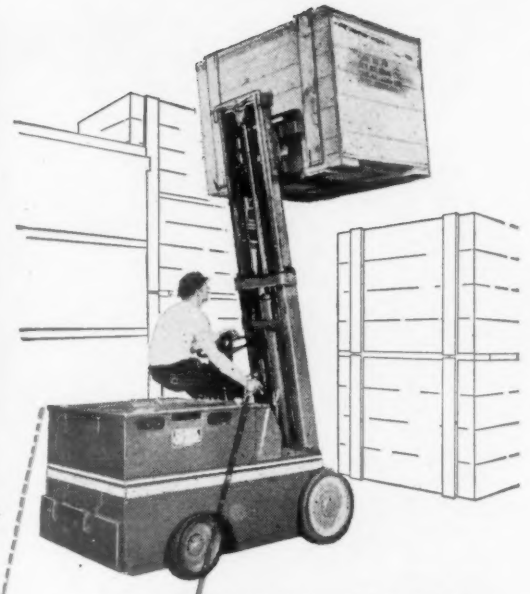
The new officers will be installed at

(*Continued on page* 192)

KATHANODE

HAS MORE WORKING *Electrolyte*





TO DRIVE YOUR ELECTRIC TRUCK *FASTER AND FARTHER!*

You can run your industrial truck farther and faster on a single charge if the batteries are Kathanode.

Look at the diagram at the left. It shows the area between the top of the bridge and the normal electrolyte level in a typical Kathanode battery. This is the space devoted to useful electrolyte.

There is more of this *working electrolyte* in a Kathanode than in any battery of the same over-all dimensions. To you it means that truck speed is sustained, trips are faster and greater in number. It is economical truck operation.

Use battery-powered industrial trucks for outstanding performance in materials handling. Use Kathanode for the best battery power. Write Dept. 27 for Catalog 100 on Gould Kathanode Glassklad Batteries for Industrial Truck and Tractor Service.

GOULD

PIONEER OF GLASSKLAD CONSTRUCTION

GOULD STORAGE BATTERY CORPORATION, Depew, N. Y. Factories: Atlanta • Chicago • Dallas • Depew • Leavenworth
Los Angeles • North Bergen • Rock Island • Saint Paul • Sioux City • Zanesville



From Lessons of War To Needs of PEACE

WAR is a terrible destroyer . . . but the struggle to survive has created a mighty stimulus to make new things and to find new ways to make old ones better. Never have so many revolutionary new conceptions been born in an equal period of time as during the past several years.

When this terrible conflict began Jessop Steel was ready to help meet the staggering demand for materiel with which to do an almost impossible job. Constant preparedness, anticipation of the future and thoroughness of metallurgical grasp placed this company in position for immediate conversion to war production. For instance, Jessop pioneered in the development of aircraft armor plate, and Jessop Armor Plate was installed on all types of military and naval aircraft. Jessop Tool Steels were extensively used in the production of much war equipment and Jessop Composite Steels help to conserve strategic alloys.

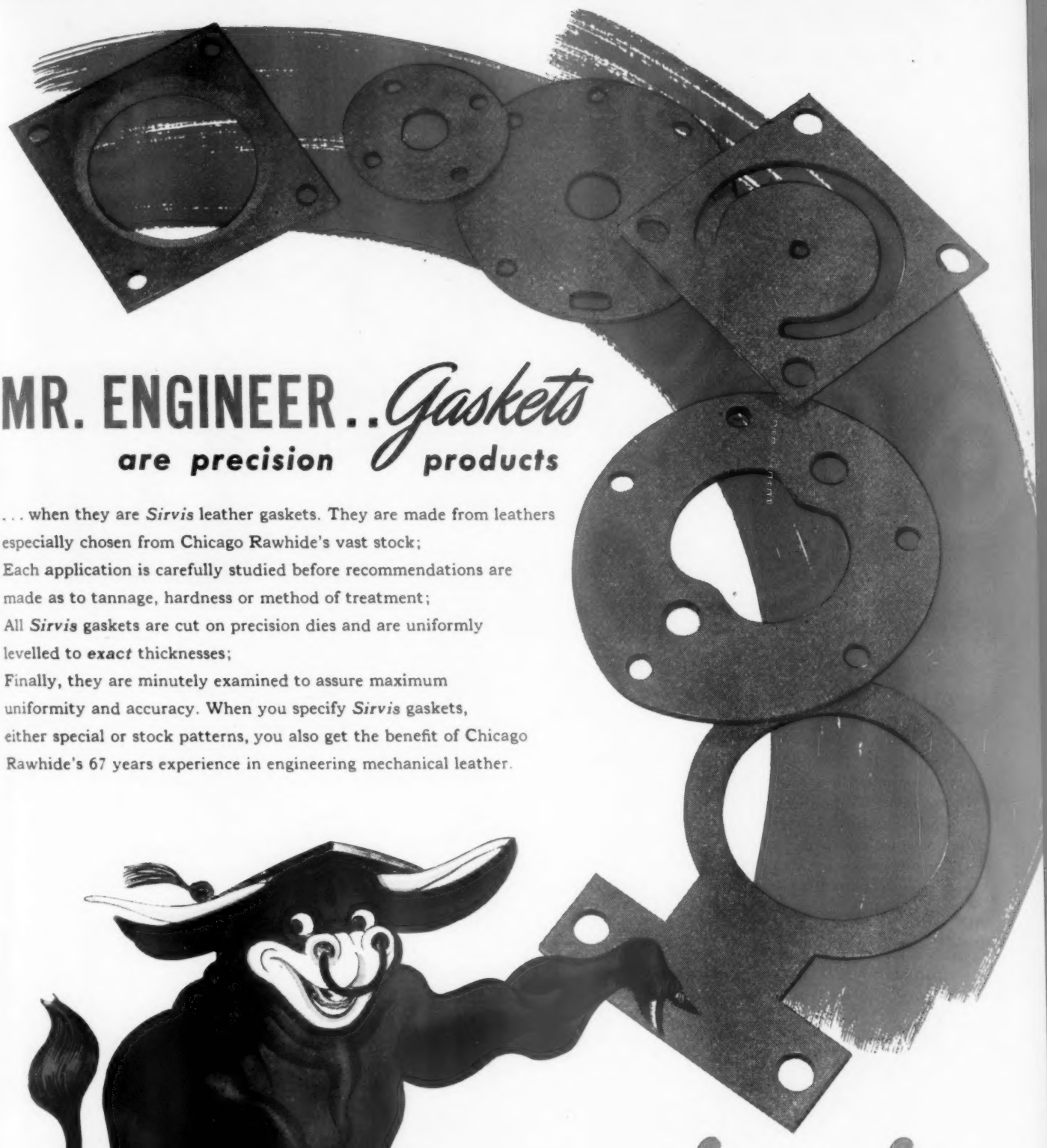
These same factors stand ready for an instant start in directions of Peace. There will be new and better products and new production methods, and Jessop will be ready with the most advantageous steels with which to put into action the thoughts of scientists, inventors, and designers.

Jessop will apply the Lessons of War to the Needs of Peace.

JESSOP STEEL COMPANY

HEAD OFFICE AND WORKS: WASHINGTON, PA.

Established 1901



MR. ENGINEER..*Gaskets*
are precision products

. . . when they are *Sirvis* leather gaskets. They are made from leathers especially chosen from Chicago Rawhide's vast stock;
Each application is carefully studied before recommendations are made as to tannage, hardness or method of treatment;
All *Sirvis* gaskets are cut on precision dies and are uniformly levelled to *exact* thicknesses;
Finally, they are minutely examined to assure maximum uniformity and accuracy. When you specify *Sirvis* gaskets, either special or stock patterns, you also get the benefit of Chicago Rawhide's 67 years experience in engineering mechanical leather.



sirvis
MECHANICAL LEATHER

A Product of

CHICAGO RAWHIDE MANUFACTURING CO.
1305 Elston Avenue Chicago 22, Illinois

New York · Philadelphia · Detroit · Los Angeles · Cleveland · Boston
Pittsburgh · San Francisco · Cincinnati · Portland · Syracuse · Peoria

THE REFLECTOR IS THE BACKBONE OF ANY LIGHTING SYSTEM . . .



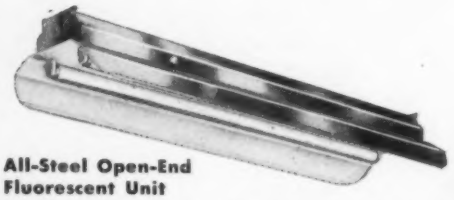
Skilled Lighting!

Helps make Skilled Hands!

Skilled work thrives on *Skilled Lighting.* Down goes the costly record of errors often due as much to blinding glare as uncertain shadow. Up goes production, both in quality and quantity, thanks to evenly distributed, shadow-free *Light* – the kind that Wheeler engineering has made famous throughout industry!

Better work and reduced costs are practically automatic when you install Wheeler Reflectors – the product of 64 years of specialized lighting experience. For they are engineered to get maximum illumination from *standard lamps.* And because of their efficient design, heavy duty materials, and high grade vitreous enameling, they stand up longer, require less maintenance.

Learn how you can lighten the load on your workers – and your operating costs. Send for catalogs showing complete line of incandescent and fluorescent lighting fixtures. **Wheeler Reflector Company, 275 Congress St., Boston 10, Mass.** Also New York. Representatives in principal cities.



All-Steel Open-End Fluorescent Unit

Available for two or three 40-watt, or two 100-watt lamps. Broad wiring channel with accessible, enclosed ballast. Can be mounted from chain or conduit, individually or in continuous runs.



RLM Solid Neck Incandescent Reflector

Maximum lighting efficiency for either indoor or outdoor use. Expertly designed, ruggedly built. 75 to 1500 watts.

Distributed Exclusively through Electrical Wholesalers

Wheeler Skilled Lighting REFLECTORS

Made by Specialists in Lighting Equipment Since 1881

(*Continued from page* 188)

the June 14 meeting of the association.

Secreatry Dean L. Fisk was awarded a gold wrist watch, annual merit award sponsored by the Southwestern Purchasing Agent, which is awarded annually for outstanding services to the Association and the purchasing profession.

JOHN CRAWFORD HEADS MONTREAL ASSOCIATION

John Crawford, Sun Life Assurance Company of Canada, was elected president of the Purchasing Agents Association of Montreal for the year 1945-46, at



President John Crawford, Montreal Assn.

the annual meeting of that body at the Mount Royal Hotel. J. G. Brigg was elected vice president; H. H. Vauthier, treasurer, and J. C. Clapinson, secretary. Members of the executive committee are C. E. Stiles, H. D. Wright, J. A. Aubry and J. C. Douglas. J. S. M. Hayes was elected National Director, and A. G. Sullivan representative on Canadian Council.

Three interesting talks were made at the meeting, illustrated by motion pictures: MacKay Smith, director, Quebec Anglers' Association, subject "Quebec's Future Fishing"; A. E. McPherson, professional at Marlborough Golf Club, "Golf and its Ethics"; E. G. Poole, General Tourist & Convention Agent, Canadian National Railways, "Where to Holiday East of the Great Lakes."

Mr. Hayes made a brief talk on the new Quebec Luxury Tax, reporting that a protest against the tax had been lodged with the Quebec Government on behalf of the association.

PLAN EDUCATIONAL MEETING PROGRAM AT READING, PA.

Chairman Clarence G. Lukens of the Program Committee of the Reading, Pa. Chapter of the National Association of Purchasing Agents, announced at the May 14th meeting of the Association held at the Iris Club in Wyomissing, Pa., plans for an outstanding series of programs for the 1945-46 meetings based on the theme "Education for the Purchasing Agent."

Mr. Lukens stated that each meeting would be arranged and devoted to a subject which would prove interesting and illuminating for every member of the or-

(*Continued on page* 196)

Announcing

NATIONAL "HELEX"

FAST SPIRAL END MILLS

For Higher Speeds, Efficient Operation

NATIONAL "Helex" End Mills are designed for milling slots, keyways and pockets, where the ordinary arbor type of milling cutter cannot be used.

The high helix angle of the cutting edges, and the general free cutting construction of these end mills, promote smooth, efficient operation even at high speeds. High speeds are recommended, especially for the smaller diameter cutters, because they avoid feed overloads and consequent breakage.

Ask your National distributor for complete information on "Helex" End Mills or write direct for free 16-page "Helex" booklet.



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Leading distributors in every section of the country carry National Cutting Tools. National distributors offer factory trained engineers to serve you. Call your National distributor for cutting tools or any staple industrial product.

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. . . service to steel users, backed by a coast-to-coast network of B&L Distributors. These local distributors are "always on the job," carrying a full line of Cold Finished Bars and Shafting for your requirements.

These quality steels . . . produced in B&L mills . . . will help you in making quality products.

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DUREZ

PHENOLIC RESINS

- MOLDING COMPOUNDS
- INDUSTRIAL RESINS
- OIL SOLUBLE RESINS

MOLDING COMPOUNDS



THRIVING ON A DIET OF "LIGHTNING BOLTS"

The rigid requirements for arc resistance, dielectric strength, and heat resistance which the modern distributor cap must pass call for a plastic compound of unusual versatility. Naturally, this means that the automotive distributor cap manufacturer looks to the phenolics because these are the most versatile of all plastics . . . and when he looks to the phenolics he looks to Durez—specialists in this field for the past quarter century. In addition to the electrical and heat resistant properties which a plastic compound for a distributor cap must have, the Durez phenolic molding compound selected for this job possesses such characteristics as good moldability, moisture resistance, and low shrinkage. You will find the versatility of the more than 300 Durez phenolic molding compounds is the natural starting point for selecting a plastic material that fits your job.

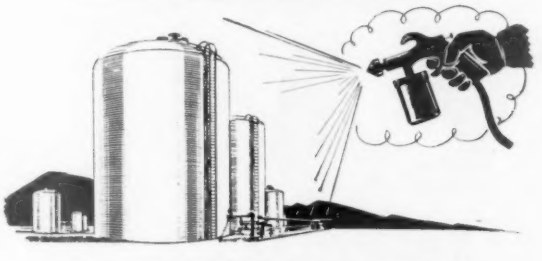
INDUSTRIAL RESINS



LOOKS LIKE A LONG HARD GRIND AHEAD

Grinding wheels bonded with Durez resin possess the durability, strength, and accurate grinding power so necessary for efficient production. Relatively simple to produce, Durez-resin-bonded grinding wheels are typical of the many—almost limitless—applications which Durez bonding resins have made available to the progressive manufacturer with an eye on post-victory markets.

OIL SOLUBLE RESINS



THE NEXT BEST THING TO THE FOUNTAIN OF YOUTH

Durez resins impart to aluminum paints the brilliance, gloss, and durability that make them amazing life prolongers for such items as petroleum storage tanks. A myriad of wartime developed (and proved) applications for Durez resins in the protective coatings field opens new horizons for the alert manufacturer.

● Versatility is a much misused word and, especially when referring to the properties of plastics, deserves elaboration. When we say that Durez phenolic resins and molding compounds are versatile, we mean that they possess a wide range of highly desirable properties such as highest dimensional stability under all types of climatic conditions, chemical resistance, impact strength, heat resistance, diversity of finishes, dielectric strength, and moisture resistance. But there is even more to it than this—for when you add to the product versatility of Durez plastics the many new molding methods and processes developed by your custom molder and the tremendous advances made with Durez resins in the impregnating, bonding, and coating field, you can readily understand the tremendous scope that is now available to the imaginative design engineer. The benefits which the wide experience of Durez technicians and the wealth of data available in our files can offer are available at all times towards the successful solution of any plastic material problem which you may have. Durez Plastics & Chemicals, Inc., 467 Walck Road, North Tonawanda, N. Y.

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ADHESIVE and chemical mix coatings expertly applied to paper, cloth, foils and other materials.

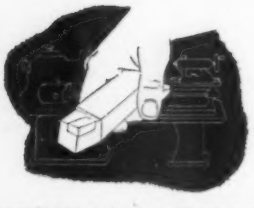
Fabrics backed, laminated or combined to your specifications, and special purpose formulas developed in our own Laboratory.

65 years of "Know-How" deliver "Use-Proved" tapes and backings deserving the enthusiastic approval they earn on the production lines.

Just tell us what your problem is and let our Laboratory, backed by their years of specialized experience in synthetics, help you find the perfect solution.

Let Mr. George L. Peters, E.M., Columbia 1911, head of our Engineering Staff, suggest from our formulas those experience indicates as best suited to your particular needs.

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Crestaloy Wrenches and Pliers
Goldenrod Blow Guns and Motor Cleaners
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Miller Falls Hand Tools
Morse Drill Bits, Taps and Dies
Osborn Wire Brushes
OTC Tools and Gear Pullers
P H Electric Hoists—Lifts
Plews Pressure Oilers
Plomb Sockets, Ratchets and Wrenches
Porter Bolt Cutters—Snips
Reed Pipe Taps and Dies
Ridgid Pipe Wrenches and Cutters
Schraders Tire Gauges and Valves
Skiltools Drills and Sanders
Simmonds Saws—Files—Rasps
Simplex Vises and Clamps
Sioux Drills and Sanders
Star Hack Saws and Blades
Starrett Micrometers—Gauges
Sunnen Valve Lifters—Keeper—Tools
Thor Drills and Sanders
Turner Blow Torches
Trimo Pipe Wrenches
Universal Gear Pullers
Utica Pliers and Wrenches
Vaco Screwstarters—Drivers
Vacuum Grip Pliers—Diagonals
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Vise Grip Wrenches
Wilde Pliers and Wrenches
Williams Wrenches and Sockets
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UNIVERSAL TOOL COMPANY
O. B. Dematteis, Pres.
1527 Grand P UTC KC, MO Kansas City, Missouri

(*Continued from page* 192)

ganization. Each meeting will be featured with either a guest speaker or a group leader, possibly a member of the association, whose topic would be along the lines of product education or purchasing theory, the talk to be followed by an open discussion.

The Program Committee plans to advise members in advance of the proposed subject so that they may "brush up" on it, and come prepared for an active meeting of argument and discussion.

Officers for the coming year were elected as follows:

President, Clarence G. Lukens, Doehler Die Casting Co., Pottstown, Pa.

Vice president, Eugene Brown, Brown Engineering Co., Reading, Pa.

Secretary, T. C. Cleming, Willson Products Inc., Reading.

Treasurer, C. H. Yoder, Merritt Lumber Yards, Reading.

National Director, H. J. Kaufmann, Narrow Fabric Co., Reading.

Two new members were voted into membership, namely, Raymond I. Yocum of Jacobs Aircraft Corp., Pottstown, Pa., and Wayne D. Gerhart of the Union Mfg. Co., Pottstown.

* * *

PAPER COMMITTEE MEETING AT CHICAGO

The Paper Committee of the Chicago Purchasing Agents Association held a dinner meeting at the Hotel Sherman on Wednesday evening, May 23rd. Intense interest in the current situation was attested by the attendance of more than 80 members, who listened attentively to an address by T. A. Corcoran of Louisville, Purchasing Agent of the *Courier-Journal* and *Louisville Times*, and national chairman of the N.A.P.A. Paper Committee. F. W. Sinsabaugh of Bradner Smith & Co., chairman of the Chicago group, presided.

Mr. Corcoran recalled his prediction of early spring, that the second quarter of 1945 would prove to be the period of "darkness before dawn" so far as the critical position of paper supply was concerned. Developments since that time have confirmed his opinion. He foresees a considerable easing of the situation during the third quarter, and the possibility of some slight increases in quotas during the fourth quarter. Conceding that this viewpoint is more optimistic than general opinion, and than the official opinion of Washington, he outlined the reasons for his belief: an accumulation of pulp in Sweden in addition to the promises of shipments to be made from current production; the resumption of production in other Scandinavian countries; the gradual availability of more shipping facilities and clearing of mines from the northern European shipping lanes; increased newsprint quotas in Canada; and progressively better output from southern domestic mills, which operate on a year-round basis and may be expected to acquire a proportionate share of new manpower, along with other industries, as returning service-

(*Continued on page* 200)

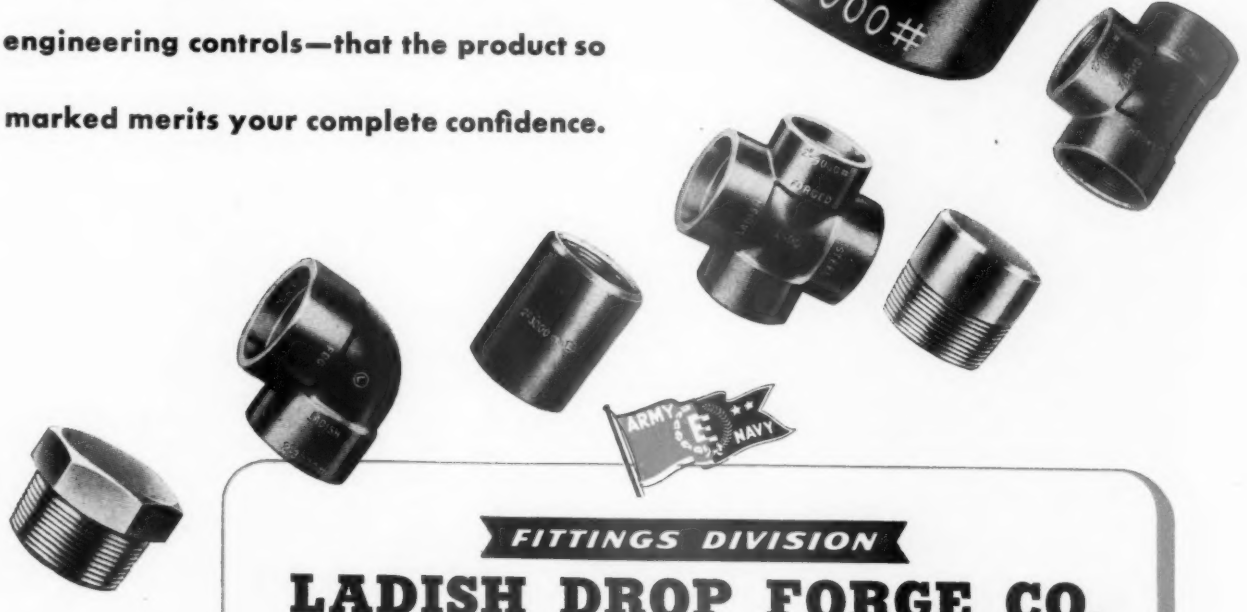
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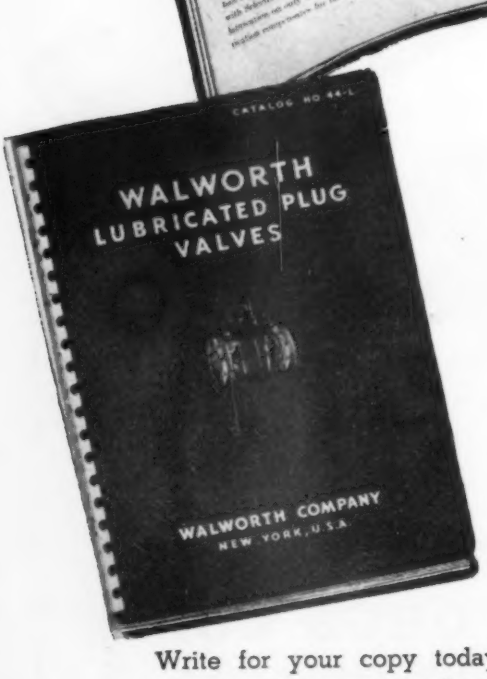
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DISTRIBUTORS IN PRINCIPAL CENTERS THROUGHOUT THE WORLD

WHY you need this SILENT PARTNER in your fixture business



THE QUIET OPERATION of G-E ballasts reduces noise complaints and promotes customer good will

G-E BALLASTS are so designed and built that hum (present to some degree in all a-c devices) has been reduced practically to the point of inaudibility.

For example, the ballast coils are *machine* wound to eliminate "springy layers," and to provide units of unvarying rectangularity. The cores are stacked automatically from high-quality, low-loss steel laminations that are cut to exact dimensions. Thus, precisely the right amount of core steel can be fitted snugly around each coil, and firmly clamped into position to prevent "play" or shifting of parts—so often a contributing cause of noise.

In addition, after all the various ballast components are assembled in a mechanically strong clamping frame, they are impregnated in a moisture-resistant varnish, and cured by baking, and housed in an unusually heavy-gage steel case. A special compound, that sets like asphalt, is poured (while hot and fluid) over and around all the assembled parts, filling all air pockets and voids and sealing the components to each other and to the ballast case. The result is a solid, cohesive ballast without noise troubles.

As a final precaution, one of the many tests which every G-E ballast must pass is an exacting noise test.

It is attention to details of this sort, and quality control during manufacture, that are responsible for the fact that, of the 16,000,000 G-E ballasts installed since 1938, 99.5 per cent are still giving quiet, successful service.

Write for Bulletin GEA-3293F for data on our complete line of ballasts for fluorescent lighting. *General Electric Company, Schenectady 5, New York.*

These ballast features help keep fixture users satisfied—they mean added profits for you

1. Low noise level—for satisfied users
2. Long life—for low replacement cost
3. Characteristics matched with lamp—for rated lamp life and light output
4. Dimensions that permit use of one wiring channel for practically all fixtures—for simplified parts inventory and lower fixture cost



CERTIFIED ETL SPEC NO. 6 HIGH P.F.



BALLASTS
LAMPS
STARTERS
LAMPHOLDERS
CABLE—stand for DEPENDABILITY in fluorescent lighting

Buy all the BONDS you can —and keep all you buy

GLYCERINE

QUICKLY AVAILABLE AT A STOCK POINT NEAR YOU!



Armour's 332 stock points mean fast, dependable service for your present and future glycerine needs.

CHEMICALLY PURE or U. S. P. . . . A high grade, water-white glycerine meeting the requirements of the United States Pharmacopoeia. Suitable for use in foods, pharmaceuticals, cosmetics or for any purpose demanding highest quality. Specific gravity is 1.249– 25°C./25°C.

HIGH GRAVITY...A pale yellow glycerine for industrial purposes with a specific gravity of 1.262– 15.5°C./15.5°C.

DYNAMITE...A yellow glycerine made especially for the explosives trade. It has a specific gravity of 1.262– 15.5°C./15.5°C.

YELLOW DISTILLED . . . A yellow glycerine for industrial purposes with a specific gravity of 1.259– 15.5°C./15.5°C.

ARMOUR AND COMPANY 1355 WEST 31ST STREET CHICAGO 9, ILLINOIS



INDUSTRIAL PARTS FOR ALL TYPES OF PRODUCTS

From minutely accurate plastic scale or dial for delicate instruments to heavy metal nameplate for giant rugged machines, Bastian has been successfully making parts for America's leading manufacturers for decades.

We would like the opportunity to consult with you and help you solve your particular parts problem.

For samples of our work, just fill in coupon below and we'll mail you this booklet of ours on Industrial Parts together with samples of our work and an idea of prices.

BASTIAN BROS. CO.

Serving the trade since 1895

Rochester, N. Y.

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CITY_____ P

(*Continued from page* 196)

men are absorbed into industry.

The meeting was attended by several national officers of N.A.P.A., in Chicago for the annual meeting of the national body, and several of these participated in the discussion which followed Mr. Corcoran's address. Charles L. Sheldon of Boston, N.A.P.A. President-elect, spoke of the continuing demand for paper containers so long as the war is in progress, and predicted that this demand would be particularly heavy in connection with moving supplies and materiel from the European theater of operations to the Far East; British and Continental sources would not be equal to supplying this demand, he said, and the burden would still be on American producers. George A. Renard, National Secretary, called attention to the lag among war prime contractors in cancelling or releasing their commitments with suppliers and subcontractors, where the great bulk of paper packaging requirements exist, and suggested that relief would come sooner if a more prompt policy were adopted in this respect. Julian G. Davies of Canada, warned against rushing into the market and building up large paper stocks, because of the strong possibility of price recessions. His economic studies indicated that prices can drop a lot faster than they have advanced, he said.

RECONVERSION ACTIVITIES SPRINGFIELD, OHIO.

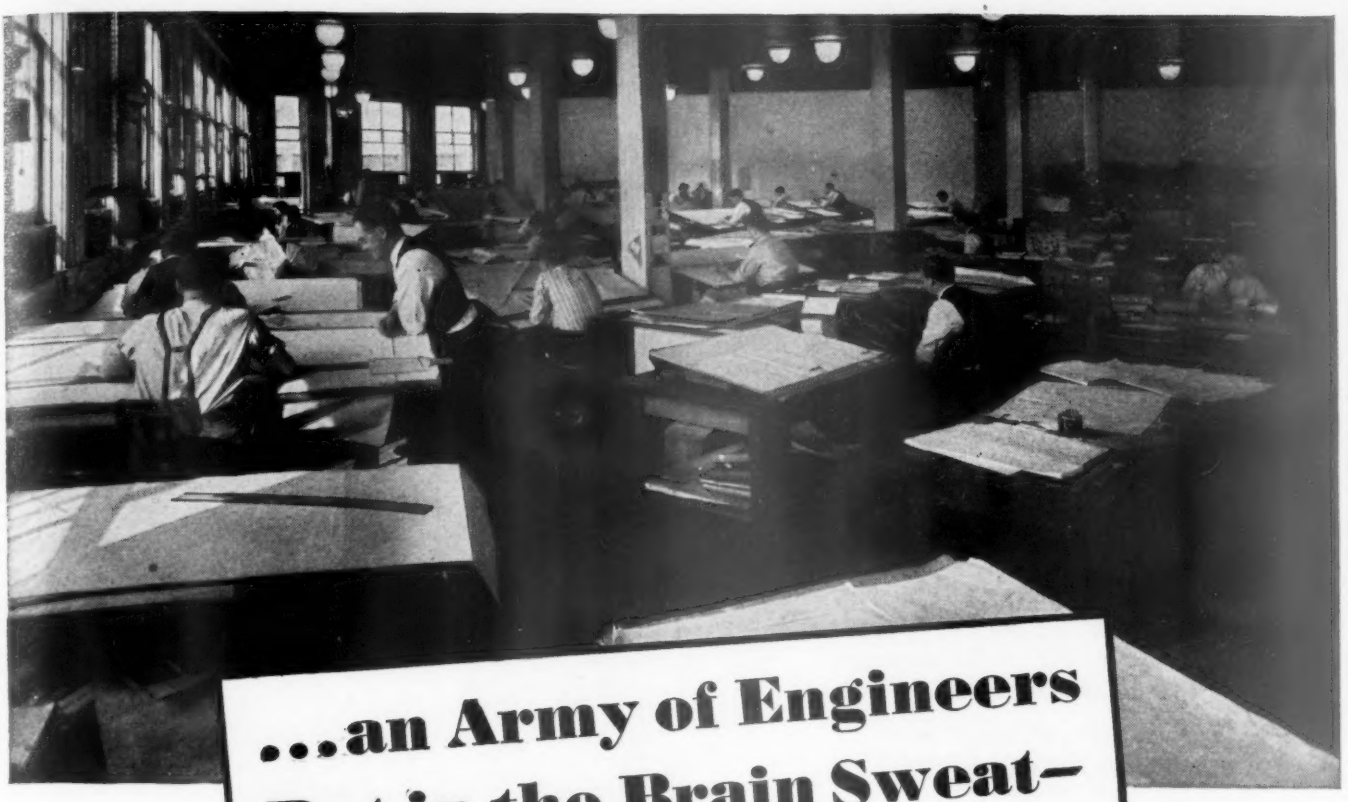
Anticipated conditions following VE Day were the subject of discussion at the May 9th meeting of the Purchasing Agents Association of Springfield, Ohio, at the Shawnee Hotel, Springfield. Members taking active leads in the discussion were President Don. Applegate, Frank Brady of Robbins & Myers, Inc., W. A. Hammond of the W. A. Hammond Drierite Co., Xenia, Ohio, Carl Stone of the Clary County Lumber Co., H. E. Laybourne of The Springfield Machine Tool Co., C. M. Shockey of the Howard Paper Co., Urbana, Ohio, Carl Myers of the Parker Pattern & Foundry Co., and R. E. Weadon of the Bundy Incubator Co.

At the May 23rd meeting, David Basch, director of Metallurgical laboratories of the General Electric Co., discussed the light metals, particularly magnesium and aluminum, and following his report Delmar Getz of the Engineering department of the Steel Products Engineering Co., discussed the handling of magnesium. A feature of the meeting was the showing of an industrial film on the casting of magnesium and showing many of its applications.

ASSOCIATION FORMED AT MUSKEGON, MICH.

The Purchasing Agents Association of Muskegon has been organized at Muskegon, Michigan, with the following officers: Martin W. Valuck, president; Lawrence P. Sorenson, vice president; Willard M. Hovey, secretary; Lawrence A. Davison, treasurer; Roy S. Harvey,

(*Continued on page* 202)



...an Army of Engineers Put in the Brain Sweat—

to give you Mechanics Hand Tools that make money

Pick up a New Britain Hand Tool. You'll sense the fact — instantly — it took some *real* engineering to get that "sweet feel" of business-like ability.

No other Hand Tool manufacturer can call upon as extensive engineering facilities as New Britain. Here, an acre of engineering science is devoted not alone to Hand Tools but to the development of the famous New Britain Machines that produce them. Significantly, this Company not only manufactures these superb Hand Tools but builds the big, amazingly precise Automatics that form many of them . . . New Britain Automatics, built to a degree of permanent accuracy as fine as 2/10,000ths of an inch — 1/10th the thickness of a human hair.

You'll see and "feel" it the very first time you pick up a New Britain Hand Tool. Ask your Mill Supply House to show you the Line . . . try one of these Tools and you'll go for them all — they're that good. The New Britain Machine Co., New Britain, Connecticut.

The complete New Britain Line for Automotive, Aircraft, General Maintenance & Production Needs is sold by leading Jobbers.

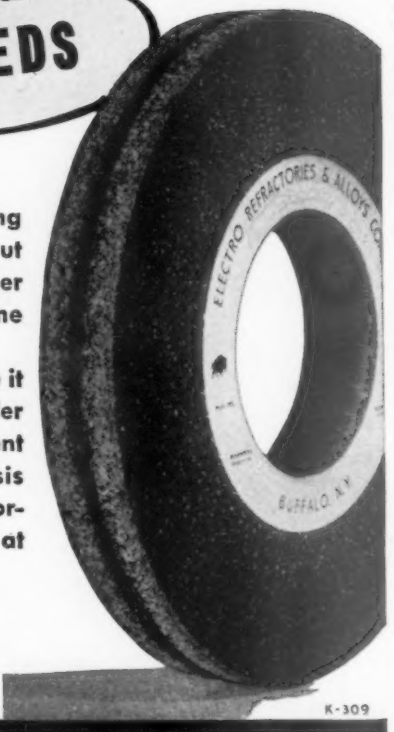
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The Army-Navy "E" Pennant, with stars, flies over New Britain's plants, signalizing outstanding production of machine tools, aircraft engine parts and projectiles.

GREATER STRENGTH • BETTER FIT **HAND TOOLS**

COOLER CUTTING at HIGHER SPEEDS



These new Electro High-Speed Grinding Wheels afford faster cutting without troublesome heat development whether the grind is for snagging or for fine finishing.

We believe that war demands made it possible for ELECTRO to show cooler cutting at higher speeds, and present high state of perfection will be the basis for further gains. All we ask is opportunity to prove the cooler cutting at higher speeds of our wheels.

Will you wire us?—or phone us at Buffalo, WAshington 5259?

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Manufacturers of Crucibles • Refractories • Stoppers • Alloys • Grinding Wheels
344 DELAWARE AVENUE *Established 1919* BUFFALO 2, NEW YORK

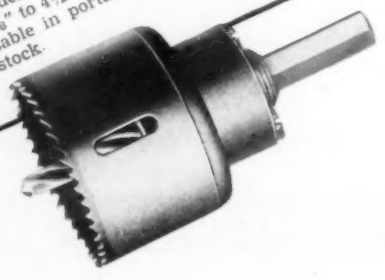
Fast Tough



Heavy feed at high speed spells doom to the ordinary hack saw blade; down-time for your machine, extra expense in money, man hours, and production. The MARVEL Hack Saw Blade, because it is positively *unbreakable* under these conditions, should be "a must" tool in every efficiently operated shop. A tough alloy steel back is electrically welded to high speed steel teeth, producing a blade that can be pulled to almost unlimited tension; can withstand extra heavy feeds and the heat and abrasion of high speed heavy duty sawing.

Heavy feed at high speed!

The same exclusive *unbreakable* feature of MARVEL Hack Saw Blades is also a feature of MARVEL Hole Saws, giving these saws the ability to stand up under abuse. MARVEL Hole Saws cut holes from 5/8" to 4 1/2" diameter in stock up to 1 1/8" thick. Usable in portable drill, drill press, or lathe tail stock.



HIGH-SPEED-EDGE MARVEL

Complete Range of Metal Sawing Machines
Being the largest exclusive manufacturer of metal sawing machines and blades, both hack saw and band saw type, we have the correct answer to your cut-off problems. Each MARVEL model has a distinct application, so write us and we will send our catalog, price, and recommendation for the saw to fill your requirements most efficiently. MARVEL sawing engineers are also available to discuss and analyze your cut-off work. (Without obligation of course)

ARMSTRONG-BLUM MFG. CO.
5700 W. Bloomingdale Ave., Chicago 39, Illinois, U. S. A.

(*Continued from page* 200)

National director; and Maurice B. Ramsey, Charles F. Regan and Joseph A. Nadeau, members of the executive board.

The May meeting of the Association was addressed by Neil A. Moore, vice president and general manager of Sealed Power Corp., Muskegon. Mr. Moore's subject was Reconversion and Reemployment. He said that the success of postwar reconversion and reemployment will be largely dependent on how the Office of Price Administration carries out its pricing policies, declaring that there would be no incentive for industry to hasten postwar civilian production if O.P.A. does not permit sufficient price increases to industry which allow moderate profit. Production is the best answer to inflation, he said.

The Muskegon Association is affiliated with the National Association of Purchasing Agents, membership application having been approved at the recent executive meeting of the National Association in Chicago.

ALBERT E. LOEFFLER, JR. HEADS LOUISVILLE ASSOCIATION

The Purchasing Agents Association of Louisville, Ky., held its annual meeting and election of officers Tuesday, May 15 at the Kentucky Hotel. Calvin H. Marcus, retiring president, reported on the year's activities, and L. G. O'Connor reported on the Seventh District Council meeting held at Chattanooga. The following officers were elected:

President, Albert E. Loeffler, Jr., Louisville Tin & Stove Co.

First vice president, Edwin V. Bulleit, Wood-Mosaic Co.

Second vice president, E. G. Voyek, U. S. Naval Ordnance Plant (Under Westinghouse management).

Secretary, Edgar E. McCulley, Courier-Journal Job Printing Co.

Asst. Secretary, George T. Lawler, Tafel Electric Co.

Treasurer, Jack Schneider, General Box Company.

National Director, Calvin H. Marcus, Edw. H. Marcus Paint Co.

Directors: W. M. Kerrick, Mengel Co.; J. T. Kinberger, Gulf Refining Co.; T. A. Corcoran, Courier-Journal and Louisville Times Company.

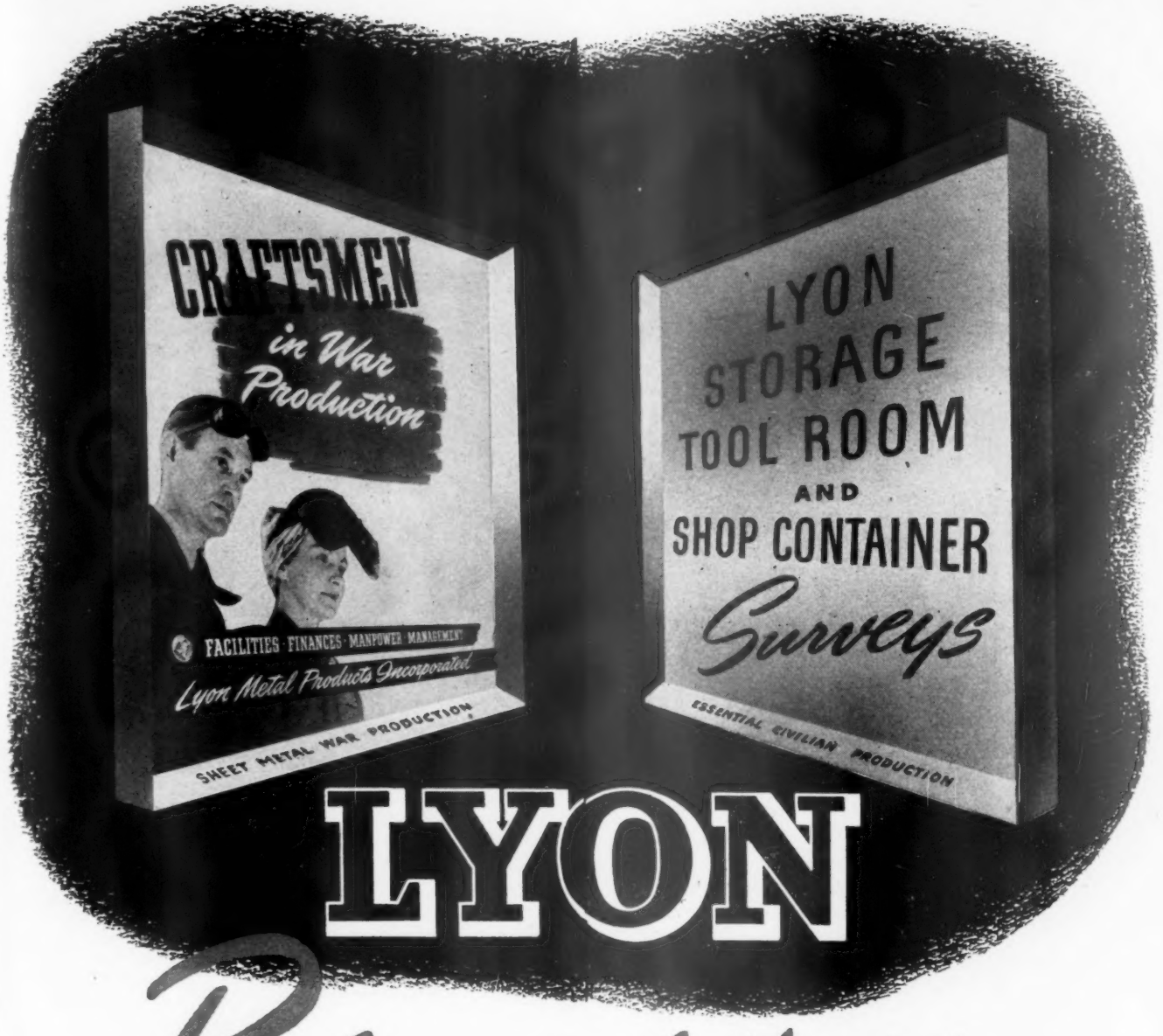
C. O. RICHARDS HEADS LEHIGH VALLEY ASSN.

C. O. Richards, Taylor-Wharton Iron & Steel Co., Easton, Pa., was elected president of the Purchasing Agents Association of the Lehigh Valley, at the association's annual meeting held at Harkers Hollow Golf Club, May 22nd.

T. H. Garrison, Trexler Farms, Allentown, was elected vice president; K. W. Shook, Victor Balata Textile Belting Co., Easton, secretary-treasurer; and C. F. Fehnel, Penn-Dixie Cement Co., Nazareth, National Director.

G. E. Brodt, Nazareth Cement Co., Nazareth, Pa.; G. A. Hildenberger, Bethlehem Steel Co., Bethlehem; and, C. R.

(*Continued on page* 204)



We want war business! Until the last Jap fox hole is cleaned out.

Our manufacturing plants — backed by 44 years in sheet metal fabrication and experience gained in handling 3800 war contracts — are fully organized to handle additional production of complete units, sub-assemblies and parts in steel, and aluminum for a wide variety of Jap-eliminating battle equipment.

When quick conversion to essential civilian production is your problem, your letter or a phone call will bring a Lyon Engineer to make a survey that will help you get stockrooms, toolrooms and production lines set for that vital job.

Write today on business letterhead for details on Lyon facilities for war production and full explanation of useful services included in a Lyon Storage, Toolroom and Shop Container Survey.

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WHAT ABOUT POST-WAR?
Do your post-war products include sheet steel or aluminum? Check Lyon's manufacturing and designing facilities.

Morton's SALT TABLETS





NOW AS FAMILIAR AND NECESSARY AS THE FIRST AID STATION

In the middle thirties salt tablets were a novel idea. Today practically all leading industrial plants wouldn't think of eliminating either salt tablets or first aid stations. Both are essential — the one to help prevent accidents, the other to repair them.

When workers sweat, their bodies lose essential salt. This loss causes Heat-Fag, inalertness, fatigue, heat prostrations. Accidents increase. Production goes down.

Morton's Salt Tablets at every drinking fountain provide an easy, simple, effective way to restore this vital salt lost through sweat. The cost is less than a cent a man per week.

In salt tablets, as with other grades and types of salt, Morton is the recognized leader. Order Morton's Salt Tablets and Dispensers from your distributor or directly from this advertisement. Write for free folder today . . . Morton Salt Company, 310 S. Michigan Ave., Chicago 4, Illinois.

MORTON'S DISPENSERS

They deliver salt tablets, one at a time, quickly, cleanly—no waste. Sanitary, easily filled, durable.

800 Tablet size - - $3.25



MORTON'S SALT TABLETS

Morton's Salt Tablets are available either plain or with dextrose.

Case of 9,000, 10-grain salt tablets - - - - - - $2.60

Salt Dextrose Tablets, case of 9,000 - - - - - $3.15

MORTON'S SALT TABLETS

(*Continued from page* 202)

Laros, Lehigh Foundries, Inc.; directors for one year.

G. L. Shearer, Pennsylvania Power & Light Co., Allentown; L. W. Wieder, Allentown-Bethlehem Gas Co., Allentown, Pa.; and R. T. McClarin, Allentown Paint Manufacturing Co., Allentown, Pa.; directors of two years.

During the afternoon's golf tournament rain interfered with the completion of the matches. Four active members were welcomed into the association at the business meeting, namely: K. R. Griffith, Stover Lock Nut & Machinery Corp., Easton; George F. Stone, Chirp Co., Phillipsburg, N. J.; S. L. Kune, Heyden Chemical Corp., Danville; and, R. R. Schlough, Chemical Manufacturing and Distributing Co., Easton. President C. F. Fehnel reported the death of T. L. Murphy of the Phillipsburg Supply Co. He also reported that R. J. Hummel of the Call-Chronicle Newspapers of Allentown, Pa., had been inducted into the service. On behalf of the association Mr. Hummel was presented with a military kit.

FRANKLYN A. ADAMS HEADS RHODE ISLAND ASSOCIATION

New officers of the Rhode Island Purchasing Agents Association for the 1945-46 term, are as follows: President, Franklyn A. Adams; First vice president, John S. Dickson; Second vice president, Mahlon E. Wallace; Secretary-Treasurer, Arnot Hirst; National Director, William F. Rayment; Directors, Thomas W. Seavor, Edward H. Burgess, Quentin T. Darelius, and Benjamin Baylis. The annual meeting and election was held at the Pawtucket Golf Club May 25. A feature of the meeting was the showing of the Allis-Chalmers Manufacturing Company's moving picture "Pan-American Highway."

Wm. R. MURRAY HEADS WESTERN MASSACHUSETTS ASSN.

William R. Murray, Bigelow Sanford Carpet Co., Springfield, Mass., is the new president of the Purchasing Agents of Western Massachusetts for the 1945-46 term. Other new officers are: Ray Fleury, A. G. Spalding & Brothers, Chicopee, vice president; William P. Durland, Worthington Pump & Machinery Corp., Holyoke, second vice president; John B. Donavan, Valentine Concrete Co., Inc., secretary.

Directors include: A. R. Sanger, Brooks Bank Note Co., Springfield, Mass.; G. W. Mosher, White & Wyckoff Manufacturing Co., Holyoke; S. J. Kennedy, Springfield Gas Light Co.; Joseph Burke, United States Rubber Company, Chicopee Falls; and A. L. Converse, Moore Drop Forging Company, Springfield.

Charles M. Healey, Jr., City Purchasing Agent, Springfield, Mass., was made national director.

Association committees chairman are as

(*Continued on page* 208)

STANDARDIZE
A Profit Principle



TO Standardize your product, so far as possible—making only the most wanted grades, sizes and designs, is generally accepted as a good principle. It permits line manufacture, eliminates the necessity of more costly job shop methods, and thus increases profits.

Have you considered how far Standardization may be carried profitably?

For example—many manufacturers Standardize on Shield Brand metal cutting tools—drills, reamers, cutters, taps, and dies. These classes of tools, all made in one plant, are manufactured under the same laboratory control of materials, the same highly trained supervision, the same rigid standard of inspection.

Result, they are uniform in economical performance. Your mechanics will like them—their use will aid you in Standardizing your own manufacturing program.

Leading mill supply dealers from coast to coast will fill your requirements. Specify Standard Shield Brand Drills, Reamers, Cutters, Taps and Dies for maximum economy in metal cutting operations.

THE STANDARD TOOL CO.

CLEVELAND

NEW YORK STORE
94 READE STREET

DETROIT STORE
6553 HAMILTON AVE.

CHICAGO STORE
532 W. WASHINGTON BLVD.



Eyes

SAVE MANPOWER... MATERIALS... MONEY

Are you shouldering your share of the nation's $50,000,000.00 annual bill for eye injuries?

You shouldn't be . . . because in most cases there's no need for it. Most eye accidents can be prevented by the use of the proper safety eyewear.

Employees with safety eyewear carefully fitted to their facial requirements . . . eyewear matched to the needs of the job . . . are better workers. They are more productive, because they are unhampered by the spectre of perpetual darkness. There is markedly less lost time, due not only to major eye accidents but to minor, unreported cases of irritation from foreign bodies.

It's all these things, added together, that make safety goggles a profitable investment for you and your workers, too. Bausch & Lomb Optical Co., 741 St. Paul St., Rochester 2, N. Y.

BAUSCH & LOMB

B&L

Safety Eyewear



Gentlemen, we are ready to talk

SPEAKERS

And we are ready to *make* them, too. Not today, of course—we've still got a war job to fiinish. After that we are prepared to break into volume production on those Speakers we have been telling you about for months.

How will they measure up? Well, back of these Speakers are nearly a quarter century of specialized engineering and mass production experience in practically all types of radio components—all to one high standard. So, set manufacturers who are hopefully and logically looking to this line of Speakers for tone superiority and the best in modern design will find their expectations fully realized.

As a matter of fact, we are now ready to discuss orders—big orders—to submit samples on request.

GENERAL ELECTRONIC APPARATUS CORPORATION
A SUBSIDIARY OF THE

GENERAL INSTRUMENT CORPORATION

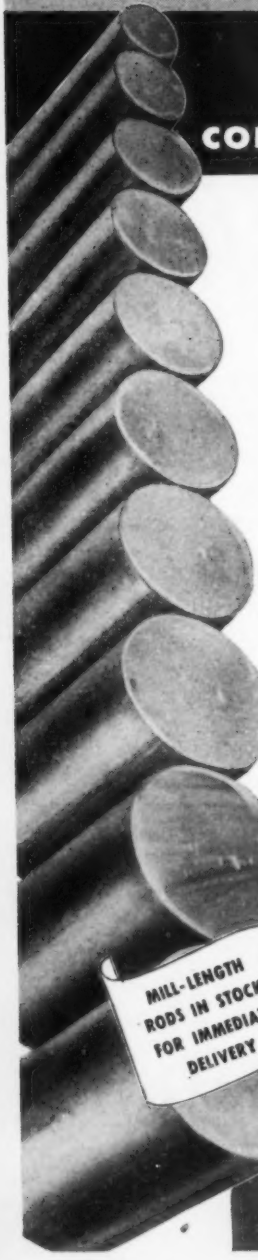
829 NEWARK AVENUE • ELIZABETH 3, N. J.



Important Production Economies with Bearing Bronzes in This New Form

No costly scrap — certain yields — faster production on screw machines

with Ampcoloy continuous cast bronze rods



For the first time, certain bronze alloys — previously available only as sand, permanent mold, or centrifugal castings — are now produced in 10 foot lengths by a continuous casting process, exclusive with Ampco in the cast bronze field.

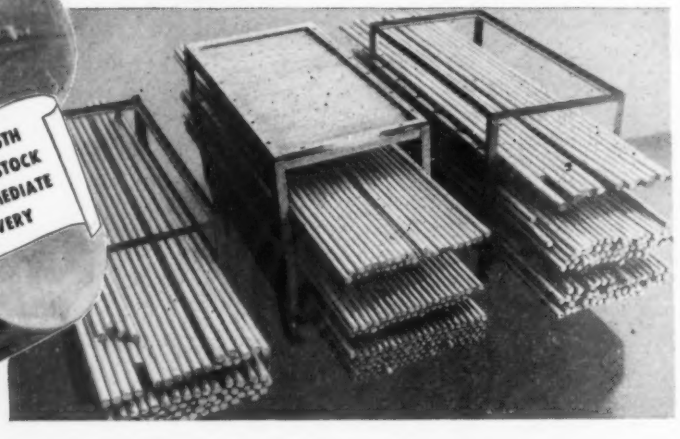
The comparative photomicrographs (tin bronze) illustrate the tremendous improvement in quality. Also the materials are adaptable to fabrication on automatic screw machines, with big savings in time, manpower, and money. Sand-free surface—no internal segregation—uniform diameter and even length. Scrap loss due to metal faults practically eliminated.

Also available are high-lead bronze and other bearing bronzes. Immediate shipment on rods up to 2" in diameter. Tubes available for prompt shipment, in tin bronze only.

Write for data sheet 131. *Ampco Metal, Inc., Dept. P-7, Milwaukee 4, Wis. Ampco field offices in principal cities.*

Reg. U. S. Pat. Off.
AMPCO
A-16

Ampcoloys are a product of
Ampco Metal, Inc.
. . . specialists in engineering, production, finishing of copper-base alloy parts



(*Continued from page* 204)

follows: Membership, Ralph D. Pond, Charles C. Lewis Co., Springfield; Public Relations, Joseph F. Conway, United States Spring Bed Co.; Reception, James W. Harrington, Greenfield Tap & Die Corp.; Program, Wm. P. Durland.

The annual meeting was held at the Hotel Highland, Springfield, May 15. Speaker for the evening was C. P. Cronk, regional lumber price specialist of the Boston Office of Price Administration, who spoke on "Lumber As It Is and As We Hope It Will Be."

TULSA CONCLUDES ASSOCIATION YEAR WITH PLANT VISIT

A visit to the plant of the Gaso Pump & Burner Manufacturing Co., following a review of priority reports and a business session on June 12 concluded the 1944-45 season's activities of the Purchasing Agents Association of Tulsa. At the May 22nd meeting of the Association, Al Braithwaite, field engineer, George E. Failing Supply Company of Enid, Okla., spoke on "Cores Will Tell." May 19th, members of the association held their annual Purchasing Agents-Salesmen golf tournament at the Indian Hills Country Club.

LARRY SMITH HEADS MEMPHIS ASSOCIATION

Larry Smith, Sefton Fiber Can Co., Memphis, Tenn., was elected president of the Memphis Association of Purchasing Agents, at a dinner meeting held at the Hotel Gayoso, May 18. Max Wells, J. E. Dilworth Co., was named vice president; Ray Durick, Memphis Natural Gas Company, secretary; and Miss Mary Speltz, Memphis Plywood Corp., treasurer. M. A. Stephenson, Memphis Packing Co., and W. E. Rier, Rotary Lift Co., were elected to the board of directors. Ann Smith, Purchasing Agent, Memphis Natural Gas Co., was duly welcomed as a new member of the association.

L. F. C. KIRBY HEADS BRITISH COLUMBIA ASSN.

L. F. C. Kirby, Vancouver General Hospital, was elected president of the Purchasing Agents Association of British Columbia, at the annual meeting of that body held in May. Other officers elected are as follows:

J. B. Watson, Silbak Premier Mines Ltd., vice president.

R. T. Baker, Edward Lipsett Ltd., secretary.

J. W. Robinson, American Can Co. Ltd., treasurer.

A. O. Scott, Canadian Fishing Co. Ltd., national director.

Chairman Ken Marsden and members of the Plant Visits Committee arranged for a visit to the plant of the Westminster Paper Co. Ltd. in New Westminster on May 30th, and to the plants of the Van-

(*Continued on page* 210)



Let your ISD* help you solve your RETOOLING PROBLEMS

● Beating swords into plowshares may have been a simple job in Biblical times, but changing from war-time to peace-time production today is a complex and troublesome task.

Many manufacturers will need all the help they can get. They will find that now, as always, it pays to telephone their *Industrial Supply Distributor *first.*

Your *Industrial Supply Distributor stands ready to help you solve your reconversion problems. He probably carries *in stock* the tools and equipment you will require . . . and if not, he knows how to get them for you promptly.



Cleveland Twist Drills are shown here drilling holes in flange yokes for universal joints. The holes are 8⅜" deep and ⅜" in diameter. ACTUAL PERFORMANCE: 165 flange yokes, or 1320 holes, in 8 hours. Perhaps you too have some difficult drilling problem. If so, please inquire. We will be glad to help you.

Telephone your * INDUSTRIAL SUPPLY DISTRIBUTOR FIRST!

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The CLEVELAND TWIST DRILL COMPANY
1242 EAST 49th STREET
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Cited for extraordinary usefulness and efficiency beyond the call of duty—the flexible, tireless

Pallet and CLARK fork truck

the extraordinary pair that speeds the flow of munitions, food and supplies to the point of use.

To see the wide range of usefulness of Clark Tructractors and Fork Trucks, send for handy 72-page pocket catalog—describes 60 husky, well engineered vehicles, gas and electric powered.

Another PRODUCT of CLARK EQUIPMENT COMPANY

CLARK TRUCTRACTOR
BATTLE CREEK, MICHIGAN, U.S.A.

Products of CLARK • TRANSMISSIONS • ELECTRIC STEEL CASTINGS
AXLES FOR TRUCKS AND BUSES • AXLE HOUSINGS • BLIND RIVETS
INDUSTRIAL TRUCKS AND TRACTORS • HIGH-SPEED DRILLS AND REAMERS
METAL SPOKE WHEELS • GEARS AND FORGINGS • RAILWAY TRUCKS

(*Continued from page* 208)

couver Engineering Works and Simmons Ltd. in June.

Because of VE Day falling on May 8th, the association's regular monthly meeting was postponed from that date to the following Tuesday, which necessitated changes in the program, which Program Chairman Cliff Kirby surmounted by having eleven of the members present at the meeting make two to five-minute extemporaneous talks on various topics, some serious and informative, others in a humorous vein.

The Association allotted a five-dollar war savings certificate for each of the best presentations on the information and humorous subjects, the winners being selected by audience applause. Andy Urquhart was declared the "winner" for his informative talk on Fruit; and Al Darlington with a talk on "Police" and Brad Watson with a talk on "Horses" tied for the humorous subject, the tie being decided in favor of Mr. Darlington by the toss of a coin.

The speakers and their subjects were as follows: Tom Fletcher, Pioneer Timber Co. Ltd., Loggers; Brad Watson, Silbak Premier Mines Ltd., Horses; Ed Jardine, W. H. Malkin Co. Ltd., Salt; Dunc Duff, B. C. Equipment Co., Ltd., Vancouver; Andy Urquhart, Vancouver General Hospital, Fruit; Harry Mulholland, Vancouver Breweries Ltd., Beer; Al Darlington, Northern Electric Co., Ltd., Police; Archie Scott, Canadian Fishing Co., Ltd., Commercial Fishing; Jack Reid, B. C. Sugar Refinery Ltd., Sugar; Sid Vernon, Boultbee, Ltd., Emergency Car Adjustment; Albert Baker, B. C. Pulp & Paper Co., The New Man.

The new officers were installed at the June 12 meeting of the associaiton which was held at the Marine Drive Golf Club.

SYRACUSE & CENTRAL NEW YORK COMMITTEES APPOINTED

President M. F. Jennings of the Purchasing Agents Association of Syracuse and Central New York, Syracuse, N. Y., has announced the following committee chairmen for the 1945-46 season: National Affairs, L. A. Saunders; Program and Entertainment, E. R. Francis; Membership, H. D. Covert; Education and Standardization, C. L. Patchin; Auditing and Budget, F. L. Howard; Publicity and Publication, M. Riepel; Commodities and Fuel, J. E. Edmonds; Attendance and Acquaintance, W. R. Owens.

COORDINATION OF CUTBACKS ST. LOUIS, MO.

John H. Martin, Director, Current Production Adjustment Division, W. P. A., Deputy Chairman, Production Readjustment Committee, spoke on "Coordination of Cutbacks and Resumption", at the May 21st meeting of the Purchasing Agents Association of St. Louis held at the Coronado Hotel. Mark B. Covell, of the Union Electric Co., was appointed Chairman of the Nominating Committee

(*Continued on page* 214)

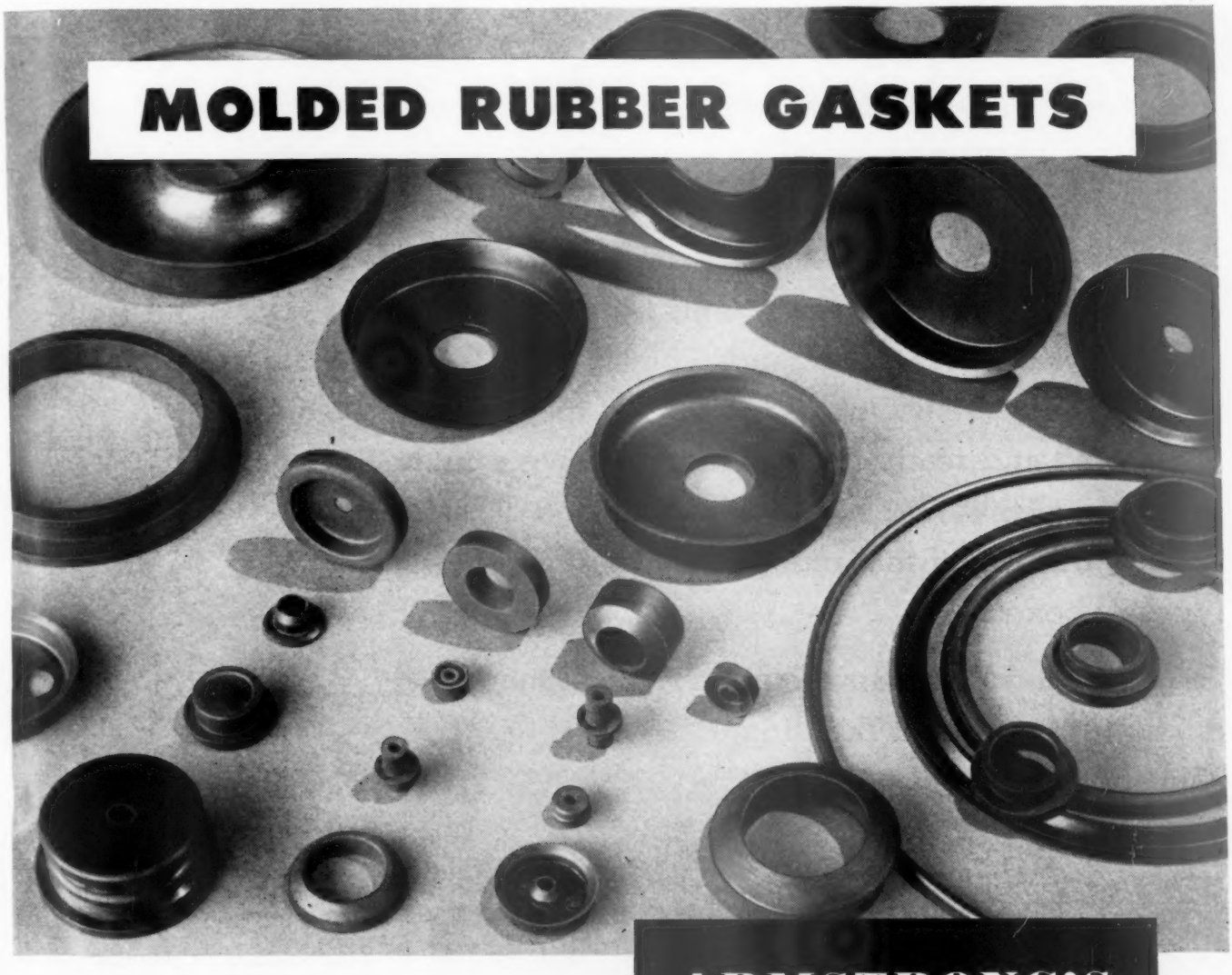
RELY ON ARMSTRONG'S *wide range of materials and experience to solve your sealing problems*

YOU have an unusually wide choice of scientifically formulated rubber gasket materials at Armstrong's. This wide variety, backed by years of specialized sealing experience, enables us to give you molded rubber gaskets that meet your specific application problems exactly.

You can currently get rubber parts precision-molded from Neoprene, Buna N, Buna S, Thiokol, Butyl, and other synthetic materials. When natural rubber is again available, Armstrong will resume manufacture of natural rubber compounds for specific applications.

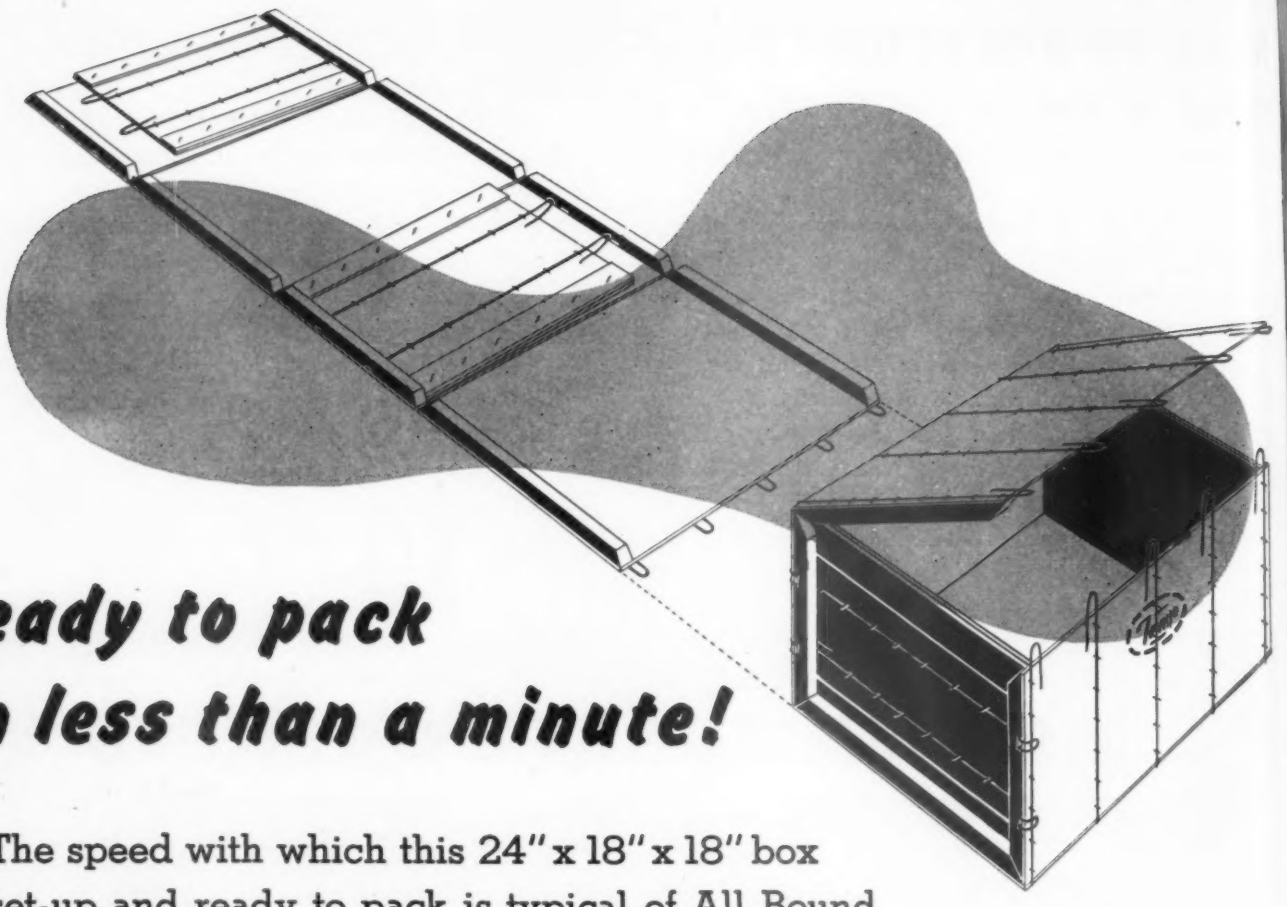
Armstrong's rubber gasket materials are formulated to meet tough conditions . . . extreme pressure, high or low temperatures, severe mechanical punishment, or the presence of "problem" liquids. They can be molded to close tolerances. Each one gives you a uniform combination of the desired physical properties.

For specification and application data on molded rubber parts and other Armstrong's sealing materials, send for your free copy of "Gaskets, Packings, and Seals." Address Armstrong Cork Company, Gaskets and Packings Department, 7207 Arch Street, Lancaster, Pa.



ARMSTRONG'S INDUSTRIAL PRODUCTS: GASKETS, PACKINGS, SEALS, and MECHANICAL SPECIALTIES of Cork, Synthetic Rubber Compounds, Cork-and-Synthetic-Rubber Compositions, Cork-and-Natural-Rubber Compositions, Fiber-Type Materials, and Rag Felt Papers • RESILIENT SURFACINGS for desks, bars, counters, etc. • FLOORINGS for buses, railway cars, etc. • TEXTILE MILL SUPPLIES • SHOE MATERIALS • ADHESIVES • GLASS INSULATORS

ARMSTRONG'S
GASKETS • PACKINGS
AND SEALS



ready to pack in less than a minute!

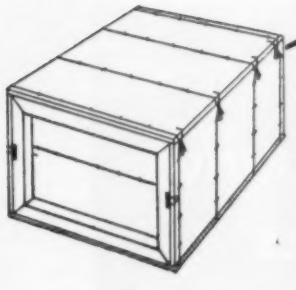
● The speed with which this 24" x 18" x 18" box is set-up and ready to pack is typical of All Bound Boxes and Crates of any size. This high-speed, low-cost assembly is possible because All Bounds come to you two-thirds assembled . . . and, with the use of a simple hand tool, are completely assembled and ready to pack in less than a minute . . . *and, in addition,* after a Wirebound is packed, the closure time is but a fraction of that required for most other types of boxes.

● Wirebound Box Manufacturers Association,
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Send today for your free copy of this 24-page book, "YOUR PRODUCT... How to ship it safely and at lower cost." Here are a few of the important points covered...

- how to reduce shipping charges with a Wirebound that safely eliminates excessive weight!
- gain greater strength, eliminating costly loss and damage claims!
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Wirebound
BOXES & CRATES



WHEN IT CAME TO "EATIN' EQUIPMENT"

they turned to Stainless Steel

MERITS OF ALLEGHENY METAL

- ★ Unaffected by any food or fruit acids.
- ★ No staining, no tarnishing, no off-tastes.
- ★ Lustrous, handsome, sanitary.
- ★ Easy to form, weld, machine.
- ★ Lowest maintenance and depreciation costs.

FOOD and stainless steel are two substances which get along well together. You can find ample evidence of that fact in the preparation and serving equipment of almost any hotel, hospital, restaurant, bar or soda fountain—and more recent evidence in the mess trays, flatware, stock pots, canteens, meat pans, field kitchens, portable refrigerators, etc., of the Armed Forces.

Food and beverages, after all, are chemicals—and Allegheny Metal, the pioneer stainless in this country, is a highly chemically-resistant material. It's bright, tough, close-textured and exceptionally strong. The sanitary factor is high, cleaning is easy, and life in service is exceptionally long. Those are properties, when you're thinking in terms of food, that look good from any angle.

If you have ideas and questions on food equipment—anywhere along the line, from processing to serving—we can fill in many of the answers. Complete technical and fabrication data, and the personal assistance of our Engineering and Research Staff, are at your disposal.

Allegheny Ludlum Steel Corporation
Brackenridge, Pennsylvania

W & D 9335-E

ALLEGHENY METAL
The Time-Tested Stainless Steel

ALSO HANDLED AND STOCKED BY ALL JOSEPH T. RYERSON & SON, INC. WAREHOUSES

(*Continued from page 210*)

with the following committeemen, to select a slate for the 1945-46 association year: Walter M. Lowry, National Lead Co., William Bridwell, General Steel Casting Corp., W. C. McCaslin, Phelan-Faust Paint Manufacturing Co.

BARNIE B. JONES HEADS ALABAMA ASSOCIATION

New officers of the Alabama Purchasing Agents Association for the 1945-46 term, are as follows: President, Barnie B. Jones, Southern Steel Works; First vice president, L. M. Quick, Commonwealth & Southern Corp.; Second vice president, C. T. Moates, Matthew Electric Supply Co.; Treasurer, N. M. Yielding, Birmingham-Southern College; Secretary, C. R. Cornie, Birmingham Board of Education; national director, George L. Wilson, Jefferson County Commission.

MAX HENSICK HEADS GRAND RAPIDS ASSOCIATION

Max Hensick was elected president of the Grand Rapids (Mich.) Purchasing Agents Association at the annual meeting held in the Rowe Hotel May 18th. Other officers are: Vice president, Ira Jackson; treasurer, Stanley Cook; secretary, Thomas Bloodgood; national director, William Ferguson. Members of the executive committee are Frank Clay, Howard Foote and George Rooney.

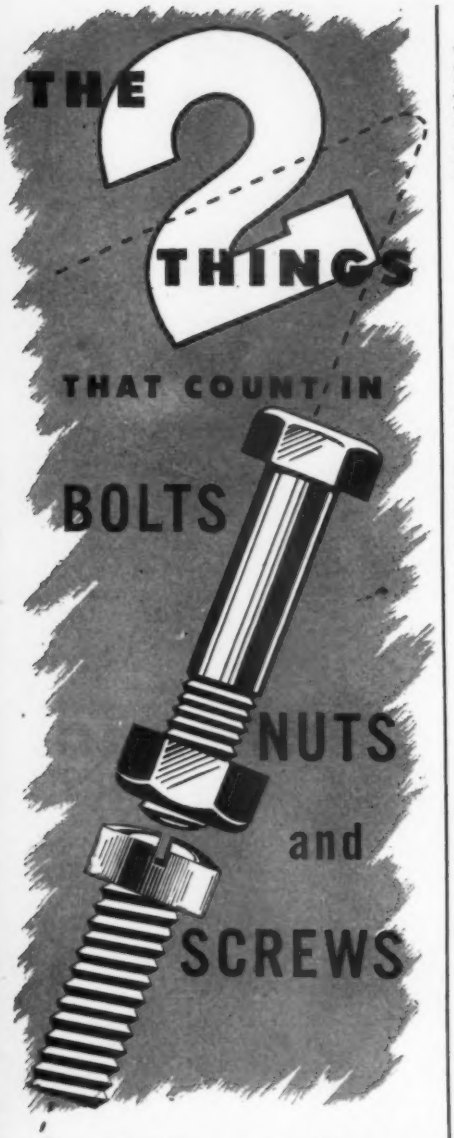
FRED J. ARTHURS

Frederic J. Arthurs, 65, President of Arthurs Buffalo Chemicals, Inc., died at his home in Buffalo, N. Y., May 23rd. The greater part of Mr. Arthurs' business life was spent as Purchasing Agent of the Larkin Co., with which he was associated for 42 years. In 1935 he became head of the company's chemical division; three years later he bought this division and reorganized it as his own company. Mr. Arthurs was a charter member of the Purchasing Agents Association of Buffalo, and one of its early presidents. He was elected to honorary membership upon his retirement from purchasing, and maintained an active interest in its affairs. He was widely known in National Association circles, having served as Vice President and Treasurer of N.A.P.A.

The following tribute concludes memorial adopted by the Buffalo association: "As an association we unitedly reverence his memory and take consolation and comfort from his always evident fairness to his fellowmen."

V. A. KELLERMEYER HEADS TOLEDO ASSOCIATION

V. A. Kellermeyer was elected president of the Purchasing Agents Association of Toledo, at the association's annual meeting held May 17 at the Hotel Secor, Toledo, Ohio. Other officers elected are: First vice president, B. W. Lang; second vice president, W. N. Newman; secretary-treasurer, H. M. Schneider. I. Ray Dorr was named national director



1. FAST ASSEMBLY

Bolts, nuts and screws made by General Screw Manufacturing Company are accurate, uniform, with clean threads and uniform heads; qualities that assure fast assembly.

2. LASTING LIFE

Careful inspection from raw material to finished product is your guarantee that the metal fastenings made by General Screw to your specifications bring long life and stay-tight qualities to your products.

Modern Facilities for Production Runs

Ideally set-up for long production runs. Our machines are modern and our management capable.



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GENERAL SCREW Manufacturing Company

1320 W. Monroe Street, Chicago 7, Ill., U. S. A.

"Extra" Manpower For Your Plant!

Add "extra" manpower to your production and maintenance cleaning staffs by taking advantage of Oakite personal advisory help.

No matter what production or maintenance cleaning tasks you have . . . degreasing, descaling, derusting . . . consult the field-trained men of Oakite's nationwide service staff. Feel free to benefit from their wealth of wartime experience to meet and solve your problems. You can make use of this Oakite service to help step up production . . . place it on a low-cost basis. You can use it to simplify and speed up ALL your maintenance cleaning tasks.

An Oakite Technical Service Representative is located near you. We'll be glad to have him call at your plant. Write us TODAY . . . there's no obligation!

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Technical Service Representatives Located in All Principal Cities of the United States and Canada

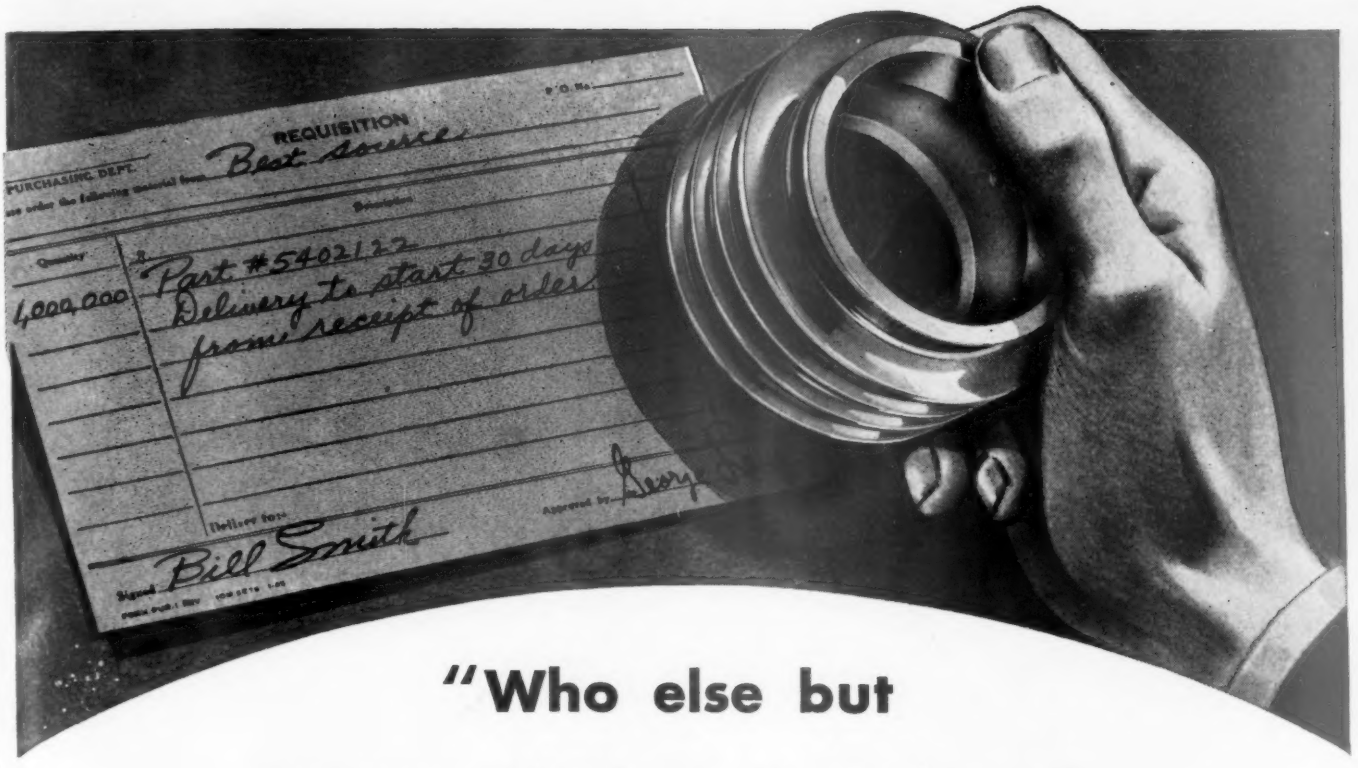
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FOR EVERY CLEANING REQUIREMENT

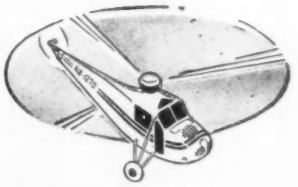


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LET today's planning be that Peace will come tomorrow! Overnight you must be ready to stop working for the few and begin to meet the demands of the many. What will you have to sell? New products . . . new designs for old . . . test models on which to form your production pattern . . . new parts for mass civilian production? Then, *it's a job for Aeronautical Products!*

API is the story of a vigorous American enterprise that became a production giant . . . proof that engineering brains, skilled workmen and precision machinery can work wonders. » » » » Two great plants tooled to perfection . . . poised and ready to serve you *completely*. Write our Executive Sales Office for plant equipment facilities . . . be ready *when the day comes!*

BUY WAR BONDS



● *Make ownership of a safe, sturdy Aeronautical Products Helicopter a "must" in your personal postwar plan. You'll find you can afford one!*

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These are the things that make America strong . . . the industries that RB&W has served during its 100 years of developing better fasteners for better products.

NO. 2 *Automobiles*

THE *Carriage Trade* . . .

FROM JOLTING JOGGING TO SMOOTH SAILING



The "Carriage Trade" has come a long way—from the jolting, jogging 5-mile-an-hour pace of the middle 1800's to the smooth comfort of today's mile-a-minute "cruising" . . . Like the carriage industry of 100 years ago, the automotive industry, through all the auto's progressive stages, has called upon RB&W for bolts, nuts and other fasteners to keep a car's body and soul together in the face of stress and shock . . . and, everlastingly, to speed up its production . . . Not by accident of birth did RB&W win the position it holds in the fastener industry. RB&W pioneered from its very



beginning a century ago, by developing such machines as the first automatic cold header. And today, from raw material to finished product, RB&W bolts and nuts are produced by the finest machines and methods available (many of them developed by RB&W engineers), backed by 100 years of "know-how" checked, proved and *improved* by continual research and development . . . That's why—no matter *what* shape or form the "carriage" of tomorrow will take, the automotive industry—like the builders of railroad and marine equipment, farm implements, construction and power equipment and others—will find RB&W ready with bolts and nuts of the proper strength, accuracy and finish—*as always.*

100 Years .. MAKING STRONG THE THINGS THAT MAKE AMERICA STRONG

RB&W

RUSSELL, BURDSALL & WARD BOLT AND NUT COMPANY

Factories at: Port Chester, N. Y., Coraopolis, Pa., Rock Falls, Ill. *Sales offices at:* Philadelphia, Detroit, Chicago, Chattanooga, Los Angeles, Portland, Seattle. *Distributors* from coast to coast. The industry's most complete, easiest-to-use catalog.

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APPROVED

by the men who make elaborate tests before any equipment is accepted . . . by the industries who demand precision PLUS and constant dependability

The old "rule of thumb" in selecting valves—or any type of service equipment is out. Wartime conditions have conclusively proven to industry (and many others) that numerous production slow-downs and excessive maintenance costs could have been prevented—by selecting the *right* valve for the *right* application. The Kerotest organization specializes in building correctly designed, precision-engineered valves to meet your specific application.

Send your specifications for quotations

"Kerotest is one of just fifteen manufacturers to receive the Fifth Star and final award for their Maritime Flag."

KEROTEST MANUFACTURING CO.
PITTSBURGH, PA.

Valves .. Accessories .. Fittings



Here is an example of fine stainless steel merchandise, a product of International Silver Co., Meriden, Conn. As with numerous other International Silver products — most of them distinctly military in character — the finish is an important factor. And, as with numerous other products, LEA Methods and LEA Compositions are used to help produce the desired results economically.

The services of LEA Technical Men and Laboratory Staff are available to any firm in industry having trouble with the finishing of its products — trouble with burring, with polishing, with buffing. Write us in full. If possible, send us samples for study and recommendations.



THE LEA MANUFACTURING CO.
WATERBURY 86, CONNECTICUT
Burring, Buffing and Polishing . . . Manufacturers and Specialists in the Development of Production Methods and Compositions

"PURCHASING, THE SALESMEN TOO" FORT WORTH

Ivan H. Wood, Advertising and Merchandising Director, Pangburn Co., spoke on "Purchasing, The Salesman Too" at the May 15th meeting of the Purchasing Agents Association of Fort Worth, at the Worth Hotel, Fort Worth, Tex.

GET-TOGETHER WITH SALESMEN CINCINNATI

The Cincinnati Association of Purchasing Agents held its annual Get Together with Salesmen at the Hotel Netherland Plaza on Friday, May 25th. Guest speaker was Stephen A. Douglas, Director of Sales Promotion, Kroger Grocery and Baking Co., who spoke on the subject "Let's Do It The Promotional Way."

NAVY MAN SPEAKS AT ROCHESTER MEETING

Commander Chester B. Peake, U. S. N., Supply Officer of the United States Naval Training Station at Sampson, N. Y., informally discussed the handling of supplies and materials at Sampson, at the May 23rd meeting of the Purchasing Agents Association of Rochester, N. Y., at the Rochester Club.

RECONVERSION RESPONSIBILITIES KALAMAZOO MEETING

Dallas Bachelder, Sutherland Paper Company, talked on "The Purchasing Department's Responsibility in Post War Planning and Reconversion" at the May 24th meeting of the Kalamazoo Valley Association of Purchasing Agents, held at the Columbia Hotel, Kalamazoo, Mich.

PAUL W. HARRIS HEADS INLAND EMPIRE ASSN.

Paul W. Harris, Diamond Match Co., Spokane, Wash., is the new president of the Inland Empire Purchasing Agents Association. Kenneth Straight of the Western Soap Co. is vice president, and Charles H. Aspinwall of the Aluminum Company of America, Mead, Wash., is secretary.

DISCUSS SURPLUS MATERIALS AT MILWAUKEE

"Surplus Materials and How to Obtain Them" was the subject of talk by H. H. Campbell of the Reconstruction Finance Corp., Surplus Property Division, at the May 15th meeting of the Purchasing Agents Association of Milwaukee, held at the Elks Club, Milwaukee, Wis.

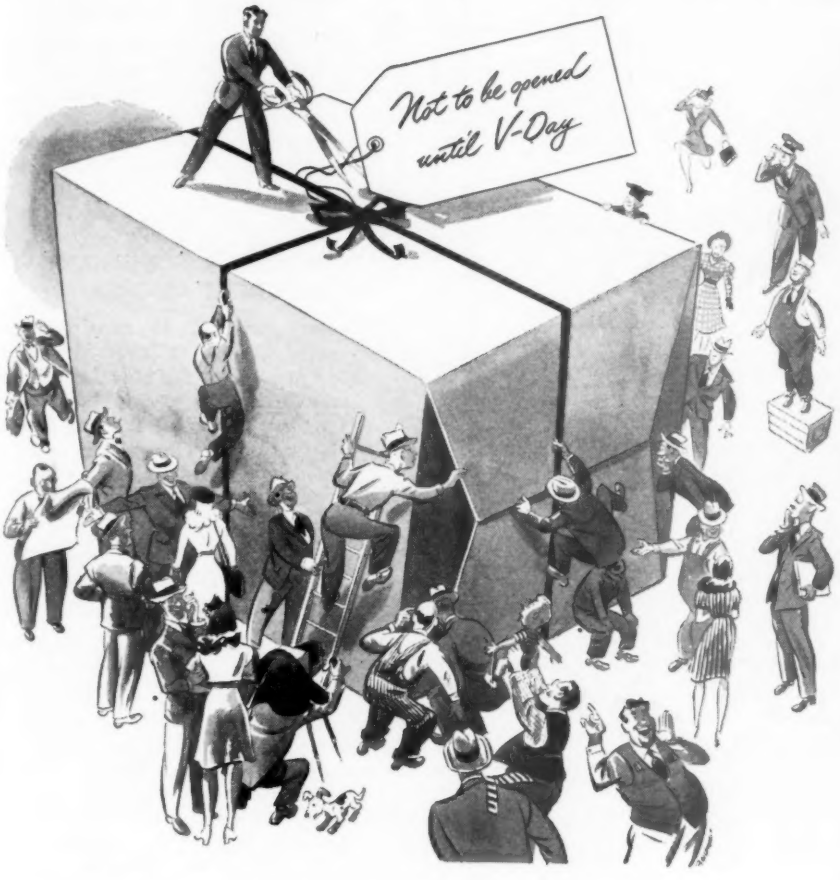
POSTWAR PLANNING CLEVELAND

"What Can We Plan for the Postwar Period?" was the subject of an address

(*Continued on page* 220)

Your **Product of Tomorrow** . . .

how are you planning to make it



STRONGER
LIGHTER
LONGER LASTING
BETTER LOOKING
LOWER IN COST
EASIER TO SELL

WHETHER you're designing freight cars or toy wagons, electric furnaces or electric toasters, steam shovels or garden spades, the basic criteria for selecting the materials you use are *suitability, availability* and *maximum economy.*

On all three counts, steel will fill the bill most often. Steel can provide strength far beyond the limits of other materials, old or new. It can withstand the severest range of temperatures or pressures. It will reduce weight safely at lowest cost. It offers high resistance to corrosion, to fatigue, to impact, shock and abrasion.

Steel can be deep drawn, forged, formed, cut, bent and twisted. You can weld it to perfection, rivet, punch and even stitch it. You can polish it to mirror surface, paint or permanently coat it with porcelain enamel. What other material can be had in so many different forms, or with such widely different properties?

Finally, the use of steel involves no unfamiliar fabricating or manufacturing problems. And, on the basis of performance, steel generally costs less.

What amounts to a revolution in the manufacture of steels for severe service has recently taken place.

The research concentrated on the developments of the weapons of war has paid off in discovering, and proving in service, hitherto unsuspected properties of special purpose steels. They open to the designing engineer entirely new fields of application, not only eminently practical, but almost unlimited in their golden possibilities. For expert assistance in their use, call on us.

NINE TIMES OUT OF TEN
STEEL WILL DO IT BETTER

U·S·S STAINLESS AND HEAT-RESISTING STEELS to assure high resistance to corrosion and heat, and to reduce weight.

U·S·S CARILLOY ALLOY STEELS–Special steels for the special jobs of industry.

U·S·S HIGH STRENGTH STEELS to resist corrosion and increase strength without adding weight.

U·S·S ELECTRICAL SHEETS for motors, generators and transformers.

U·S·S ABRASION-RESISTING STEEL to combat wear and friction.

U·S·S HOT-ROLLED AND COLD-ROLLED STEELS to provide the basic advantages of steel, plus maximum economy in accordance with the needs of each job.

U·S·S PAINTBOND—A galvanized, Bonderized sheet that permits immediate painting and holds paint tighter.

U·S·S VITRENAMEL — Sheets designed especially for porcelain enameling.

U·S·S COPPER STEEL to give at least twice the atmospheric corrosion resistance of regular steel at little additional cost.

CARNEGIE-ILLINOIS STEEL CORPORATION
Pittsburgh and Chicago
Columbia Steel Company, San Francisco, *Pacific Coast Distributors*
United States Steel Supply Company, Chicago, *Warehouse Distributors*
United States Steel Export Company, New York

USS STEEL UNITED STATES STEEL

ONLY STEEL CAN DO SO MANY JOBS SO WELL

UNITED STATES STEEL

NORTON ABRASIVES

Your Latest Dividend From Coated Abrasives Research

1878
GARNET

1918
OPENKOTE

1932
LIGHTNING
(ELECTROCOAT)

DURABONDED
TRADE MARK

Its rock-hard adhesive bond, much more resistant to operating heat, much less sensitive to humidity, gives 25% greater output at no increase in price.*

If you have not yet experienced the outstanding advantages of DURABONDED Coated Abrasives, get in touch with our nearest branch for a prompt demonstration on the toughest job you can select.

Boston, Buffalo, Chicago, Cleveland, Cincinnati, Grand Rapids, High Point, Indianapolis, Detroit, Los Angeles, New York, San Francisco, Philadelphia, St. Louis, Tacoma.

* *This is a modest average. Many reports in excess of this figure are on file.*

BEHR-MANNING
(Division of Norton Company)
TROY, N. Y.
Quality Coated Abrasives Since 1872

(*Continued from page* 218)

by Russell Weismann, chief editorial writer, Cleveland Plain Dealer, at the May 17 meeting of the Purchasing Agents Association of Cleveland at the Hotel Cleveland.

BITUMINOUS COAL RESEARCH - PITTSBURGH MEETING

Henry F. Hebley, Director of Research, Pittsburgh Coal Co., talked on Interesting Phases of Research in the Bituminous Coal Industry at the May 15 meeting of the Purchasing Agents Association of Pittsburgh, at the Hotel William Penn., Pittsburgh.

TREATMENT OF GERMANY CONNECTICUT ASSOCIATION

Professor Henri M. Peyre of the Department of French at Yale University was guest speaker at the May 22nd meeting of the Purchasing Agents Association of Connecticut held at the Barnum Hotel, Bridgeport, Conn. He talked on the "French View of the Treatment of Germany."

PROCUREMENT IN IRAN WASHINGTON, D. C.

A. Russell Miller, incoming president of the Purchasing Agents Association of Washington, D. C., was formally presented with the gavel by retiring president Jack Kurtz, at the association's June 12 meeting at the Mayflower Hotel. President Miller made announcement of his objective "to do everything in my power to advance the purchasing profession by close adherence to the principles of the National Association.

Guest speaker of the evening was C. Irving Hansen, Director, Procurement division, U. S. Maritime Commission, and, for the past 16 months, Administrator of the Procurement Division and Director General of the State General Supply and Service Corporation of Iran, who told of his experiences in Iran.

Roland M. Brennan, Purchasing Officer, District of Columbia, member of the Food and Food Products Committee, submitted a symposium from the committee as to present and future problems facing the food industry and food buyers.

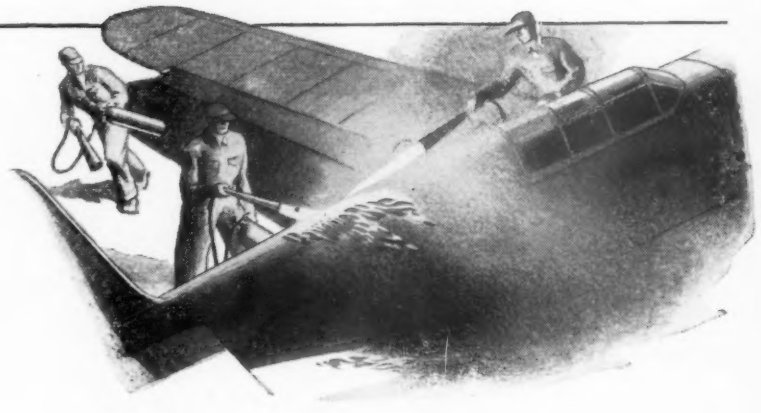
A diamond studded NAPA lapel pin was presented to the retiring president, Mr. Kurtz. The application for membership of F. N. DeBay of the Navy Department Conservation Division was approved.

President Miller announced appointment of the following committees and their respective chairmen: Membership: E. B. Wallace, chairman; Program & Entertainment, Robert N. Striebe; Public Relations, Grey Leslie; By-Laws, T. R. Foster; Educational, Clifton E. Mack; Attendance, Kelly M. Pardoe; Auditing, Edward E. Cissell; Publicity, Roland M. Brennan; New Products, A. W. Alexander; Metals, Frederick T. Huber; Food and Food Products, B. M. Foster.

They Needed a Special Kind of Hose



Thermoid Solved the Problem



The General Detroit Corporation, manufacturers of fire extinguishers, asked Thermoid to produce 5/16" wire braid hose, duplicating or improving upon the hose they were then using. Thermoid turned the problem over to its engineering and research staff and they came up with the solution. They engineered a special hose. The tube particularly was designed to handle CO_2 under pressure, with the added feature of being made resistant to the permeating effect of CO_2.

Speaking of this problem, E. A. Warren, Vice-President of The General Detroit Corp., says: "It is simply a grand job of cooperation between Thermoid Company and The General Detroit Corporation, another case where cooperation can make a fine record of necessary goods turned out for the Army and Navy." This problem is one of the many which Thermoid engineers are solving to improve the quality of the products of American industry. If you have a problem concerning the use, design or manufacture of industrial rubber, why not call in the Thermoid field representative.

DON'T PUT IT OFF 'TIL TOMORROW
Buy More War Bonds Today!

Thermoid Rubber

"IT'S GOOD BUSINESS TO DO BUSINESS WITH THERMOID"

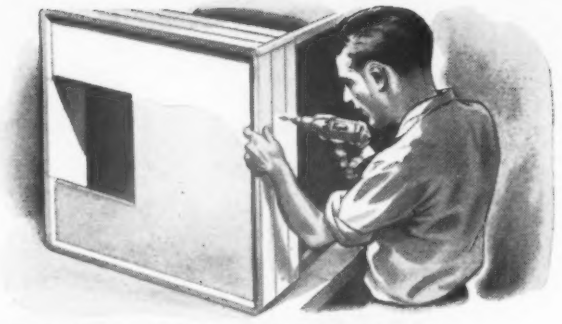
DIVISION OF THERMOID COMPANY
TRENTON, NEW JERSEY

THE THERMOID LINE INCLUDES: Transmission Belting • F.H.P. and Multiple V-Belts and Drives • Conveyor Belting • Elevator Belting • Wrapped and Molded Hose • Sheet Packings • Industrial Brake Linings and Friction Products • Molded Hard Rubber and Plastic Products.



SHUTS OUT SLIP-UPS!

Assembling baby furniture was mighty slow work with slotted screws, one manufacturer found. Too many scratches to refinish – scratches caused by driver skids. So to pick up production he switched to Phillips Screws...



FRIENDLY TO PROFITS!

... out went burred heads and driver skids and slant driven screws. Out went slow-as-molasses hand driving. In came power driving – and with it, savings in time and materials that sliced a big chunk off assembly costs.



LONG ON SAFETY!

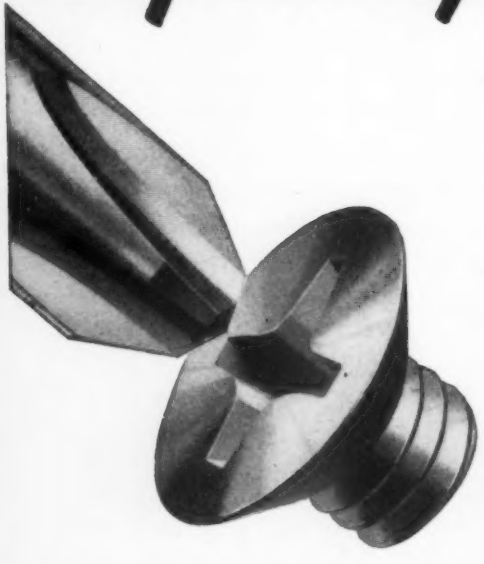
By making it stronger and more rigid, and by banishing dangerous burrs, Phillips Screws made this furniture safer for the kids. And your designers will find they do the same things for your product – whether it's tiny as a hearing aid or hefty as a harvester!



TOUGH ON COMPETITION!

Because of the ornamental design of the recess, Phillips Recessed Head Screws impart a "quality look" to any product. They give you a burr-free, blemish-free job that tells prospects you're on *your* toes – and warns competitors to watch out for *theirs!*

It's Phillips — the engineered recess!



In the Phillips Recess, mechanical principles are so correctly applied that every angle, plane, and dimension contributes fully to screw-driving efficiency.

... It's the exact pitch of the angles that eliminates driver skids.

... It's the engineered design of the 16 planes that makes it easy to apply full turning power – without reaming.

... It's the "just-right" depth of recess that enables Phillips Screw Heads to take heaviest driving pressures.

With such precise engineering, is it any wonder that Phillips Screws speed driving as much as 50% – cut costs correspondingly?

To give workers a chance to do their best, give them faster, easier-driving Phillips Recessed Head Screws. Plan Phillips Screws into your product now.

PHILLIPS *Recessed Head* SCREWS

WOOD SCREWS • MACHINE SCREWS • SELF-TAPPING SCREWS • STOVE BOLTS

Made in all sizes, types and head styles

25 SOURCES

American Screw Co., Providence, R. I.
Atlantic Screw Works, Hartford, Conn.
The Bristol Co., Waterbury, Conn.
Central Screw Co., Chicago, Ill.
Chandler Products Corp., Cleveland, Ohio
Continental Screw Co., New Bedford, Mass.
The Corbin Screw Corp., New Britain, Conn.
General Screw Mfg. Co., Chicago, Ill.
The H. M. Harper Co., Chicago, Ill.
International Screw Co., Detroit, Mich.
The Lamson & Sessions Co., Cleveland, Ohio
Manufacturers Screw Products, Chicago, Ill.
Milford Rivet and Machine Co., Milford, Conn.
The National Screw & Mfg. Co., Cleveland, Ohio
New England Screw Co., Keene, N. H.
Parker-Kalon Corp., New York, N. Y.
Pawtucket Screw Co., Pawtucket, R. I.
Pheoll Manufacturing Co., Chicago, Ill.
Reading Screw Co., Norristown, Pa.
Russell Burdsall & Ward Bolt & Nut Co., Port Chester, N. Y.
Scovill Manufacturing Co., Waterville, Conn.
Shakeproof Inc., Chicago, Ill.
The Southington Hardware Mfg. Co., Southington, Conn.
The Steel Company of Canada Ltd., Hamilton, Canada
Wolverine Bolt Co., Detroit, Mich.



Look again! The "STRIPPED MODEL" is on the right!

(the kind of stripped model your company must produce to maintain its position and profits, sustain high employment)

"STRIPPED" models, in the *usual* sense, are just what people *won't* want. But models of every product, *stripped* of needless costs, are what they *will* want. And they'll get them.

For, today, business recognizes that producing and distributing *more for less* is the only way for individual companies to maintain their competitive positions. They know that putting better and better products within reach of more and more consumers is essential to sustain a high level of national employment.

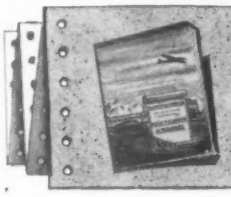
Where can you strip unnecessary costs?

Many companies came *unexpectedly* upon the answer during the peak of the war production emergency. "Impossible" orders had to be filled—fast. Production procedures were overhauled. So were record systems of control. Inefficient paper-work methods that had grown up, hit or miss, went out the window.

Standard Register representatives were called in by hundreds of companies to make paper-work simplification studies. They went to work, streamlined the waste out of complex form design, cumbersome methods of writing and handling forms. Results? More effective use of men, materials and machines to boost production as much as 50%. Direct paper-work savings running into five and six figures. Incalculable indirect savings.

Turn those savings into a *better* product —at no increase in cost

Ask your local Standard Register representative to explain how our method of approach to your paper-work problems gets at the facts and arrives at the answers in a minimum of time and *without upsetting office routine.* No obligation, of course.



FOR FULL INFORMATION, write today. Ask for our new informative folder; "A New Frontier in Business," today's opportunity for cost saving through scientific form and system improvement . . . PAPER-WORK SIMPLIFICATION! Or ask for a representative to call and discuss your problems.

THE STANDARD REGISTER COMPANY

Manufacturer of Record Systems of Control for Business and Industry

DAYTON 1, OHIO

Pacific Coast: Sunset McKee-Standard Register Sales Co., Oakland, California. Canada: R. L. Crain, Ltd., Ottawa. London: W. H. Smith & Son, Ltd.

We Couldn't Have Fought a Global War Without



Picture how difficult it would have been to assemble and train our armed forces without paper. Ask yourself whether plants turning out war materials could ever have attained their present production without the help of paper . . . whether sales of U. S. War Bonds and Stamps could ever have rocketed to their present levels without it. And remember that, without paper, the rationing system which is enabling our civilian population to carry their part of the wartime load would be impossible.

The men and women who are engaged with us in the manufacture of Howard Bond have every reason to feel proud of the work they are doing. They, too, are holding down vital "war jobs."

THE HOWARD PAPER COMPANY ★ URBANA, OHIO

PRODUCTION EXECUTIVE

Office Equipment and Supplies

Monthly FORMS FORUM

Change Order, Rejection Form, Simple Requisition and Purchase Order Forms and Railway Express Receipt

J. M. HORTON, Purchasing Agent, Bay City Division, The Dow Chemical Company, Bay City, Mich., furnished the accompanying *Change Order* form, postal *Acknowledgment* form, postal *Tracer* form, and *Rejection Form,* developed at the Bay City plant, which he felt might be of interest to readers of the Forms Forum:

"The *Change Order* form," he states, "which comes in two parts is one that we have developed at this plant, and while it is not particularly outstanding in any respect it has served our purpose very well."

Commenting on the development of the form and the advantages that it offers, he advises that "like many other firms, we were more or less forced into using a form such as this due to the fact that many changes become necessary in purchase orders after they have been written and mailed. This involves change in quantity, changes in engineering design, changes in delivery, and so on.

"Using a very light weight paper we are able to make six, eight or ten copies of this *Change Order* and in that manner spread them around to the various departments and do away with writing of individual letters to each department to

CHANGE ORDER

Page____ of ____

CHANGE NUMBER

BAY CITY DIVISION
THE DOW CHEMICAL COMPANY
Bay City Michigan, U. S. A.

PURCHASE ORDER NUMBER

C. O. Date _____
To: _____

P. O. Date _____
S. O. No. 27- _____

Contract No. _____

Vendors No. _____

ITEM NO.	FROM	TO
	Actual Size 8½" x 11"	

CHANGE NO. _____ TO PURCHASE ORDER NO. _____

No changes shall be made in the original purchase order and/or subsequent change orders unless specifically authorized herein.

Reason for Change:

Authorized By:

Bay City Division
THE DOW CHEMICAL COMPANY

BY: _____
J. M. HORTON
Purchasing Agent

NOTICE

All attached acknowledgment copies must be signed by an authorized individual of your firm and promptly returned to us

ACKNOWLEDGMENT COPY

VENDOR _____

BY _____

836-B 7-44 1M

Acknowledgement and Tracer forms are printed on standard post cards

This will acknowledge receipt of your

Order No. _____. At the present time we expect

shipment can be made by _____.

This will bear our Order No. _____.

_____

IMPORTANT

ORDER TRACER

Please advise immediately if / when you will ship

Our Order No. _____ Your No. _____

_____

BAY CITY DIVISION
THE DOW CHEMICAL CO.
BAY CITY, MICH.

27 31 2M 11-44

_____ 194____

Here's Why
ACE STAPLES
HAVE SUCH HIGH TENSILE
PENETRATING STRENGTH

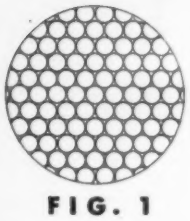


FIG. 1

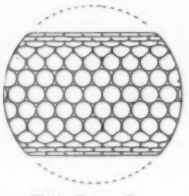


FIG. 2

FIG. 1 shows a cross section, highly magnified, of an all-round steel wire. In production of Ace Staples only the finest quality, precision made, accurately drawn-to-size steel wire is used.

FIG. 2. The wire is then compressed, by an exclusive Ace process, on two sides, as illustrated which condenses the grain of the wire along the outer edges where the greatest strength is most desirable. This process practically eliminates buckling by giving the staples higher tensile and penetrating power. In fact Ace Staples are so tough they will readily penetrate and securely fasten up to 35 to 40 average sheets of paper. All Ace Staples are hand inspected and specially treated to prevent rust.



SOLD THROUGH DEALERS EXCLUSIVELY
ACE FASTENER CORPORATION
3415 North Ashland Ave., Chicago 13, Ill.

ACE The WORLD'S FINEST
Stapling Machines
FOR EVERY PURSE AND PURPOSE

notify them of the change. We are referring to the Receiving Department, the Accounting Department, the Inspection Department, the Engineering Department and so on.

"We send an original and acknowledgment copy to the vendor, and as to be noted on the acknowledgment copy the vendor signs and returns to us that copy, which is placed in the purchase order folder. On the face of the purchase order we insert the date that this *Acknowledgment* copy was received in our office. We have run as many as thirty sets of *Change Orders* through in one day, and as this is not a particularly large plant, this fact gives some idea of the use of this form.

"The *Acknowledgment* postal is sent with many purchase orders and gives vendors the opportunity to acknowledge receipt of our order, advise us of their number which will be used on the order and the possible shipping date. This is followed up at a later date if necessary with an *Order Tracer* postal card which we have found very effective.

"Our *Rejection Report* was developed by our Inspection Department which is charged with the duty of inspecting all parts used on our finished products. This report is rendered in quadruplicate and the various department involved receive a copy.

"At the bottom of this form space is provided for indicating whether material is being returned for credit or for replacement. If it is being returned for replacement the responsibility of issuing an additional purchase order for this replacement rests with the Purchasing Department."

REPORT No. 901
DATE
THE DOW CHEMICAL CO.
DOWMETAL FABRICATION DIVISION
BAY CITY, MICH.
REJECTION REPORT
DISTRIBUTION

SHOP ORDER | PART NAME:-
QUANTITY | VENDOR:-
WT.
P. O. No. | CAUSE FOR REJECTION:-
RESPONSIBILITY
ENGR. | MAT. CONTROL

"Original and 4 copies made by Inspection Office. All data must be noted and cause for rejection fully explained. Original as noted, 2nd to Vendor, 3rd to Inspection File, 4th to General Fabrication-Planning, 5th to Purchasing."

DISPOSITION:- RETURN TO VENDOR FOR: CREDIT ☐ REPLACEMENT ☐ SIGNED
LOCATION:- BLDG.
REJECTION MADE BY:-
CHIEF INSPECTOR

Two Simple Forms

HERE are two simple forms used by the Purchasing Department of the Robinson Manufacturing Company, Everett, Washington. Wilma White, Purchasing Agent, states that the *Purchase Order* form is made in triplicate with one time carbon insert. The original

THIS IS NOT A PURCHASE ORDER—FOR OFFICE USE ONLY
ROBINSON MANUFACTURING CO. SUPPLY ORDER
Purchase No. Actual Size 8½" x 5½" Date
NUMBER | DESCRIPTION | CHARGE TO
3M Sets—4-44—74748—K&H
FOREMAN
A 3776

(*Continued on page* 230)

Simplified paper work for Contract Termination

Get full details in our booklet, "The ABC of Contract Termination"



A sound and simple system has been worked out that enables you to handle all three phases of contract windups smoothly and easily. Representative plants of all sizes and categories are finding it is thoroughly practical in actual use.

It is a system based on simplification of necessary paper work through use of the Mimeograph* duplicator. It assures smooth coordination, accurate control. It eliminates rewriting of constant data. It fills the very important government specification for fade-proof, permanently legible copy.

The whole procedure is explained in detail in our booklet, "The ABC of Contract Termination." It gives you suggestions for planning your termination organization, tells exactly what paper work is required, and shows a sample set of forms and a chart which tells how the forms travel, what they accomplish and how they meet all the requirements of the government.

Like thousands of others, we think you too will find this booklet a very real help. Get your copy by mailing the coupon below.

Mimeograph die-impressed stencils of the required OCS forms are available at once from your authorized Mimeograph distributor. They eliminate the need for preprinted forms. Type inventory information in position and reproduce form and fill-in together, as many copies as you need.

Mimeograph duplicator

*MIMEOGRAPH is the trade-mark of A. B. Dick Company, Chicago, registered in the U.S. Pat. Off.



COPYRIGHT, A. B. DICK COMPANY

A. B. Dick Company, Dept. P-745, 720 W. Jackson Blvd., Chicago 6. Send me a free copy of your booklet, "THE ABC OF CONTRACT TERMINATION."

NAME.....

COMPANY.....

ADDRESS.....

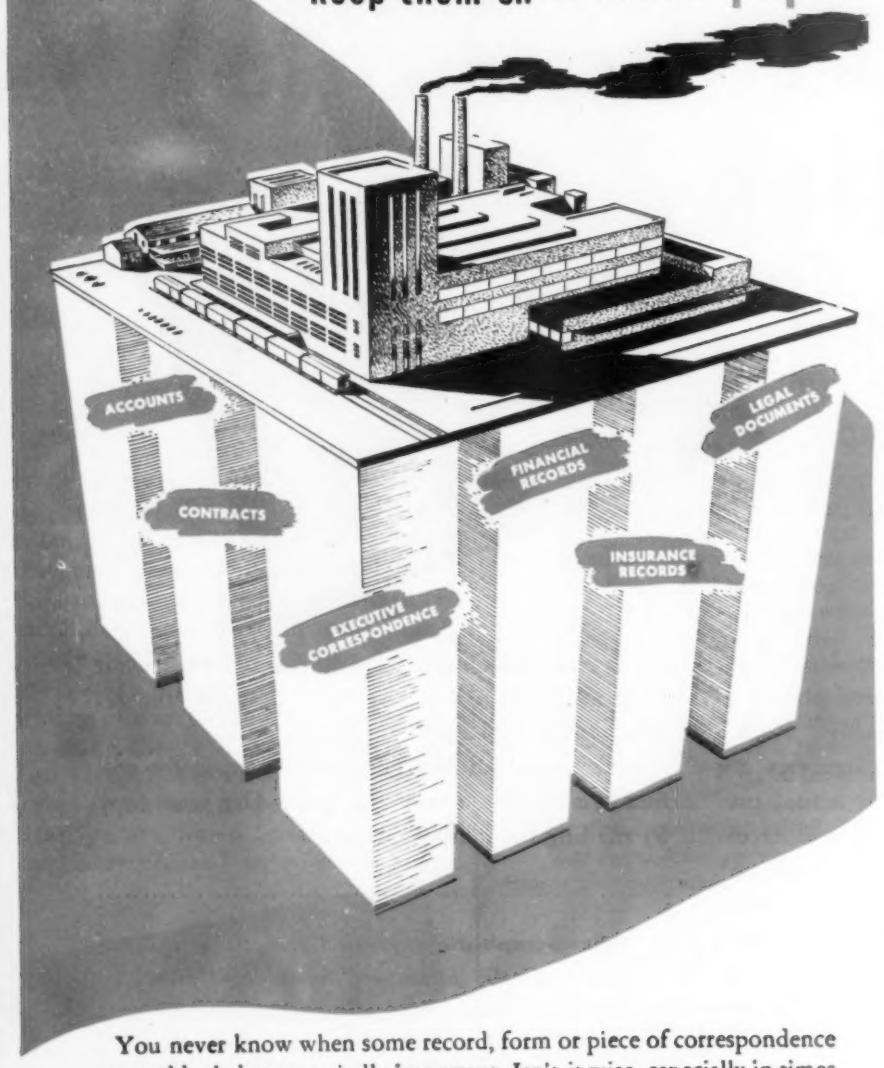
CITY.....STATE.....

YOUR BUSINESS

rests on its records

If they're Worth Keeping,

keep them on Weston paper



You never know when some record, form or piece of correspondence may suddenly become vitally important. Isn't it wise, especially in times like these, to see that such records are placed on papers made specifically for record keeping?—WESTON Cotton Fibre Content Record, Ledger, Index and Bond Papers.

Time and rough, constant handling hold no terrors for WESTON Papers. Their qualities of resistance and endurance are proved by the fact that the bulk of this nation's priceless permanent records of life and property have been placed on WESTON paper for generations.

Lasting record protection is so easy and inexpensive to obtain. Simply earmark those records that you consider *worth keeping* and ask whoever procures them to see that they are put on a WESTON paper.

BYRON WESTON COMPANY, Dalton, Massachusetts

Weston *Makers of Papers for Business Records*

WESTON PAPERS · PROTECT YOUR RECORDS

REVOKE LIMITATION ORDER ON OFFICE MACHINES

Limitation Order L-54-c, originally issued March 14, 1942, to control production of all types of electric and non-electric office machines (exclusive of typewriters, formerly controlled by L-54-a) has been revoked, the War Production Board announces.

Since manufacturers have been producing numerous types of office machines as well as war goods throughout the war period, and since some of their military contracts already have been reduced, and further cutbacks are anticipated, most types of office machines will be available soon, WPB said.

Among the military items made by office machine manufacturers are bomb sights, fire control mechanisms, fuses, rockets, aircraft engine parts, ordnance items, guns, rifles, carbines, and many other types of war goods.

In L-54-c, office machines were classified in three groups, with separate controls for each group.

Both production and distribution of one group of office machines were controlled by the order. In this group were 19 classes of machines, including accounting, bookkeeping, adding, addressing, calculating, tabulating, duplicating and other office machines. Manufacturers were permitted to make these machines to fill WPB-approved orders from military and essential industrial users. In addition, they were permitted to maintain inventories of these machines equal to 20 per cent of the dollar value of the same types of machines billed by them in 1941. WPB approval no longer is required on orders for these machines.

Production of another group of office machines (autographic registers, change making machines, and shorthand writing machines) was permitted at an annual rate of 80 per cent of the dollar value of the same types of machined billed by manufacturers in 1941. Distribution of these machines was not restricted.

Manufacture of machines in the third group (cash registering machines, perforating machines, and stamp affixing machines) was prohibited. Sales from inventory were permitted, however, since L-54-c did not restrict distribution of these machines.

* * *

REDEFINE "COMMERCIAL PRINTING"

Commercial Printing Limitation Order L-241 still controls all types of commercial printing and duplicating, the War Production Board Printing and Publishing Division announces.

Despite the recent revocation of Order L-226, which controlled production and distribution of new printing trades machinery, and L-54-c, covering office machinery, WPB has no intention of revoking or relaxing control of commercial printing itself nor control of print paper, division officials said.

Since the definition of "printing" in L-

(*Continued on page* 234)



No. 1025—6
18" x 9" x 9"



No. 1025—1
12" x 6" x 6"

Made to your order . . . and ready now!

SPARE PARTS BOXES

As per specifications 42B (Int) for shipboard use. Electrical and Mechanical. Navy grey finish. Immediate delivery.

SPECIAL SIZES MADE TO ORDER . . . 24 STOCK SIZES

Number	Length	Width	Height	Number	Length	Width	Height
1025- 1	12	6	6	1025-13	18	18	12
1025- 2	12	9	6	1025-14	30	15	12
1025- 3	12	12	6	1025-15	24	15	12
1025- 4	12	9	9	1025-16	24	15	15
1025- 5	18	9	6	1025-17	24	18	12
1025- 6	18	9	9	1025-18	24	18	15
1025- 7	18	12	9	1025-19	24	18	18
1025- 8	18	6	6	1025-20	24	12	9
1025- 9	18	15	9	1025-21	42	9	9
1025-10	18	12	6	1025-22	36	12	9
1025-11	18	15	12	1025-23	30	15	9
1025-12	18	12	12	1025-24	42	12	9

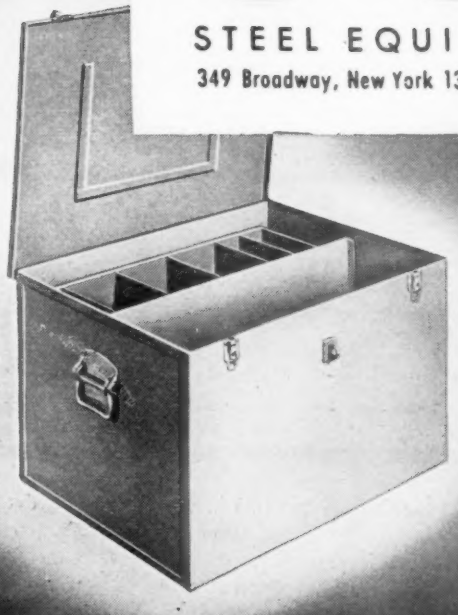
WRITE FOR PRICE LIST

COLE

STEEL EQUIPMENT COMPANY

349 Broadway, New York 13, New York • Factory: Brooklyn, New York

No. 1025—14
30" x 15" x 12"
(Partitions not included)



Cole Steel office equipment will again be available after the war

We have reduced our Typing, Mailing, and Filing costs by using



ESLEECK
THIN PAPERS

They are strong and durable, yet have minimum bulk. Their lightness and strength combined, allow us to make numerous clean, clear carbon copies. We use them now for Thin Letterheads on all our Branch Office, Foreign and Air Mail correspondence. We also use the distinctive colors for our office records and factory forms.

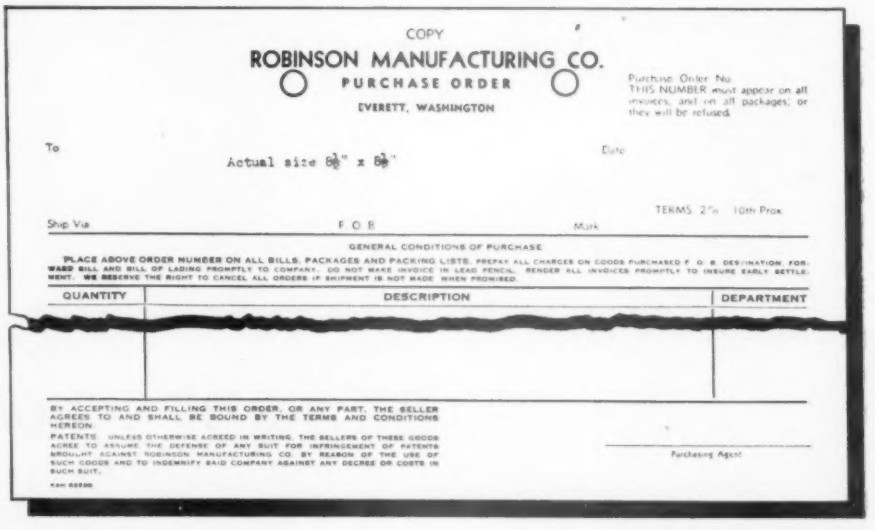
Fidelity Onion Skin
Clearcopy Onion Skin
Superior Manifold

SEND FOR SAMPLES

ESLEECK
Manufacturing Company
Turners Falls, Mass.

(*Continued from page 226*)

copy (white) is sent to the supplier; the second copy on yellow paper stock rechecked, being returned to the purchasing department with the delivery receipt and/or packing list.



COPY

ROBINSON MANUFACTURING CO.
PURCHASE ORDER
EVERETT, WASHINGTON

Purchase Order No.
THIS NUMBER must appear on all invoices, and on all packages; or they will be refused.

To

Actual size 8½" x 6¾"

Date

TERMS 2% 10th Prox.

Ship Via F. O. B. Mark

GENERAL CONDITIONS OF PURCHASE

PLACE ABOVE ORDER NUMBER ON ALL BILLS, PACKAGES AND PACKING LISTS. PREPAY ALL CHARGES ON GOODS PURCHASED F. O. B. DESTINATION. FORWARD BILL AND BILL OF LADING PROMPTLY TO COMPANY. DO NOT MAKE INVOICE IN LEAD PENCIL. RENDER ALL INVOICES PROMPTLY TO INSURE EARLY SETTLEMENT. WE RESERVE THE RIGHT TO CANCEL ALL ORDERS IF SHIPMENT IS NOT MADE WHEN PROMISED.

QUANTITY	DESCRIPTION	DEPARTMENT

BY ACCEPTING AND FILLING THIS ORDER, OR ANY PART, THE SELLER AGREES TO AND SHALL BE BOUND BY THE TERMS AND CONDITIONS HEREON.

PATENTS: UNLESS OTHERWISE AGREED IN WRITING, THE SELLERS OF THESE GOODS AGREE TO ASSUME THE DEFENSE OF ANY SUIT FOR INFRINGEMENT OF PATENTS BROUGHT AGAINST ROBINSON MANUFACTURING CO. BY REASON OF THE USE OF SUCH GOODS AND TO INDEMNIFY SAID COMPANY AGAINST ANY DECREE OR COSTS IN SUCH SUIT.

Purchasing Agent

mains in the purchasing department as a permanent record; and the third or pink copy, is for the receiving room to be

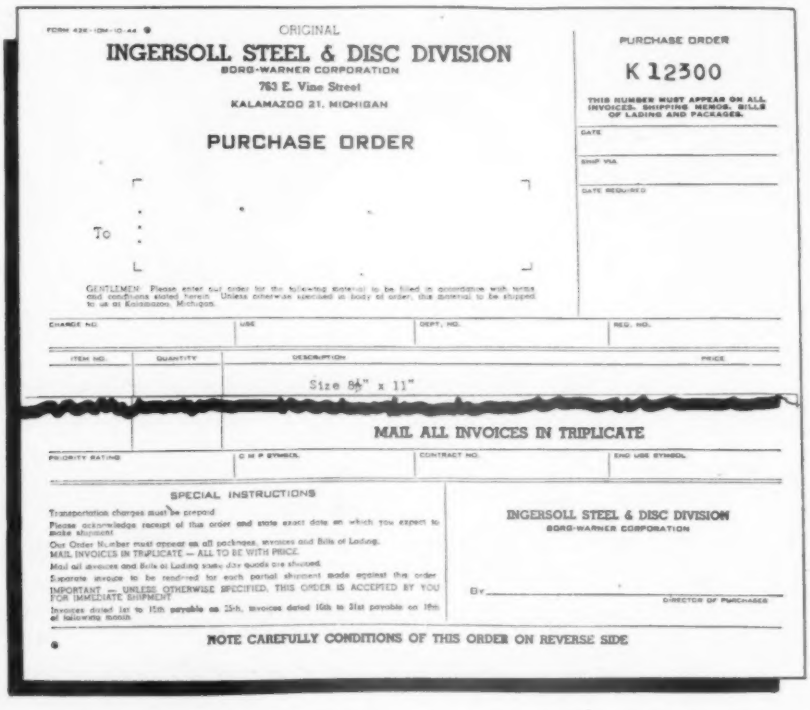
The requisition blanks are printed in duplicate in book form, the original for the purchasing department..

Purchase Order and Requisition Forms

THE accompanying Purchase Order and Requisition forms are brought to you through the courtesy of C. L. Solomon, Purchasing Agent, Ingersoll Steel & Disc Divn., Borg-Warner Corporation, Kalamazoo Works, Kalamazoo, Michigan, who also furnished the following comment in regard to them:

The first copy of the purchasing form, (of which six copies are prepared), is sent to the vendor, and the second copy is retained in the purchasing department files. The third copy is sent to the receiving department. The other three copies have no routing on them whatsoever.

This lack of indicated routing allows for flexibility in the handling of the forms in case it is decided to change the current routing practice. At present the sixth copy is sent to the accounting department, and the fourth copy is sent to the receiving department as an extra.



FORM 426—10M—10-44

ORIGINAL

INGERSOLL STEEL & DISC DIVISION
BORG-WARNER CORPORATION
763 E. Vine Street
KALAMAZOO 21, MICHIGAN

PURCHASE ORDER

PURCHASE ORDER
K 12300
THIS NUMBER MUST APPEAR ON ALL INVOICES, SHIPPING MEMOS, BILLS OF LADING AND PACKAGES.

DATE
SHIP VIA
DATE REQUIRED

PURCHASE ORDER

To

GENTLEMEN: Please enter our order for the following material to be filled in accordance with terms and conditions stated herein. Unless otherwise specified as body of order, this material to be shipped to us at Kalamazoo, Michigan.

CHARGE NO.	USE	DEPT. NO.	REQ. NO.

ITEM NO.	QUANTITY	DESCRIPTION	PRICE
		Size 8½" x 11"	

MAIL ALL INVOICES IN TRIPLICATE

PRIORITY RATING	C M P SYMBOL	CONTRACT NO.	END USE SYMBOL

SPECIAL INSTRUCTIONS

Transportation charges must be prepaid.
Please acknowledge receipt of this order and state exact date on which you expect to make shipment.
Our Order Number must appear on all packages, invoices and Bills of Lading.
MAIL INVOICES IN TRIPLICATE — ALL TO BE WITH PRICE.
Mail all invoices and Bills of Lading same day goods are shipped.
Separate invoice to be rendered for each partial shipment made against this order.
IMPORTANT — UNLESS OTHERWISE SPECIFIED, THIS ORDER IS ACCEPTED BY YOU FOR IMMEDIATE SHIPMENT.
Invoices dated 1st to 15th payable on 25th, invoices dated 16th to 31st payable on 10th of following month.

INGERSOLL STEEL & DISC DIVISION
BORG-WARNER CORPORATION

By
DIRECTOR OF PURCHASES

NOTE CAREFULLY CONDITIONS OF THIS ORDER ON REVERSE SIDE

(*Continued on page 232*)



THE INSIDE STORY IS AN OPEN SECRET

No need to pull springs to get on the inside of the SWINGLINE job... Just flick back the head . . . There's the greatest stapler story ever told... Simpler mechanism . . . Fewer parts . . . Nothing to get out of order... *and the Staple Channel wide open* so that it can be loaded in a split-second with eyes shut!

Buy SWINGLINE and you buy SPEED!
Desk and Plier-Type Models $1.50-$5.50

SPEED

Swingline

STAPLERS

SPEED

SWINGLINES take any standard staples but Genuine Speed SWINGLINE Staples are preferred. Precision-made of 100% round wire so they don't collect the excess glue film that causes clogging.

SPEED PRODUCTS CO. • Long Island City 1, N. Y.

Classic



The Ultimate Ribbon for Your "Front Office" Correspondence . . . Crystal-Clear Reports and Records

Inspired by classic tradition, Classic Ribbons contribute a *new art* in business writing. They raise typing appearance and "impression" standards to a new high; climax the combination of executive dictation, top-secretarial typing and quality letterhead.

On a wear-plus-performance basis, Classic Ribbons represent only a minor cost of producing correspondence of outstanding dignity; sparkling, convincing records and reports.

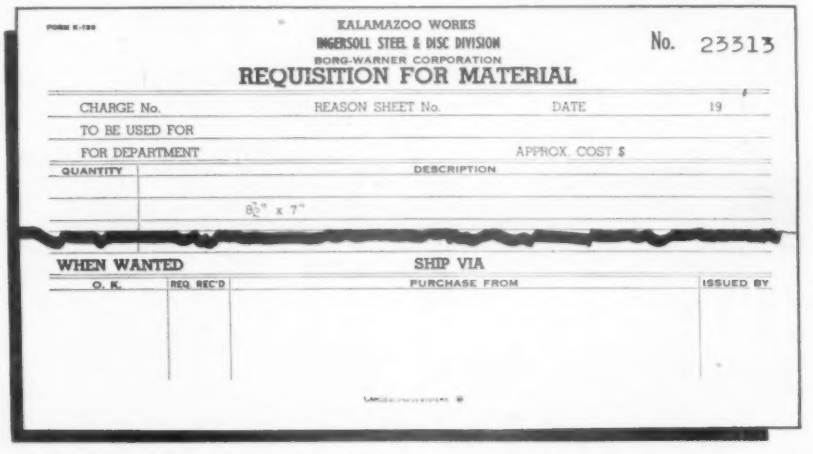
Like all fine things, Classic Ribbons endure. Made to traditional Columbia standards, in black, black-and-red, and colors, their sheer, sturdy ribbon fabric is quality-inked by scientific, uniform control. Ask your dealer or the nearest Columbia branch for prices and office-demonstration *on any make of standard or noiseless typewriter or business machine.*

COLUMBIA
RIBBON & CARBON MANUFACTURING CO., INC.
Main Office & Factory: Glen Cove, L. I., N. Y.
NEW YORK • KANSAS CITY, MO.
CHICAGO • DETROIT • MILWAUKEE
MINNEAPOLIS • NASHVILLE
PHILADELPHIA • PITTSBURGH
PORTLAND, ORE. • CINCINNATI HARRIS-MOERS COMPANY
Also: London, England; Sydney, Australia

(*Continued from page 230*)

The fifth copy is sometimes sent to the department which originates the requisition, especially to the engineering department where oftimes price and bids are obtained on some of the larger requirements. In other instances, unless a requisition is made by department head, the copy is discarded. Mr. Solomon states that the current arrangements are quite applicable to their requirements.

The requisition form, which is made out in triplicate, is of the one-time carbon type. The original and one copy are sent by the making department to the purchasing department, the third remaining in the department making the requisition. The purchasing department prices the duplicate copy and forwards it to the Priority Director. The original, of course, is authority for writing the Purchase order. After the purchase order is written, the order number is quoted on the copy that remains in the purchasing department, and the requisitions are filed in numerical order.



KALAMAZOO WORKS
INGERSOLL STEEL & DISC DIVISION
BORG-WARNER CORPORATION
No. 23313
REQUISITION FOR MATERIAL

CHARGE No. REASON SHEET No. DATE 19
TO BE USED FOR
FOR DEPARTMENT APPROX. COST $
QUANTITY DESCRIPTION
8½" x 7"

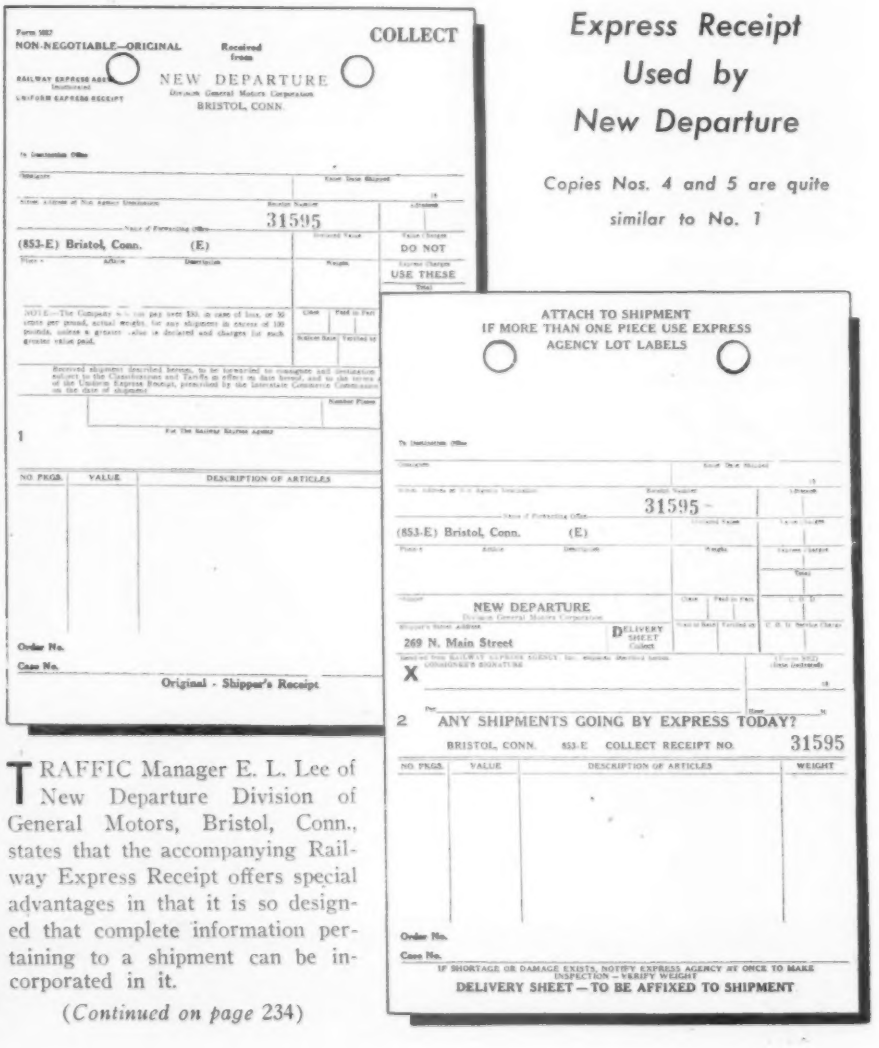
WHEN WANTED SHIP VIA
O. K. REQ. REC'D PURCHASE FROM ISSUED BY

TRAFFIC Manager E. L. Lee of New Departure Division of General Motors, Bristol, Conn., states that the accompanying Railway Express Receipt offers special advantages in that it is so designed that complete information pertaining to a shipment can be incorporated in it.

(*Continued on page 234*)

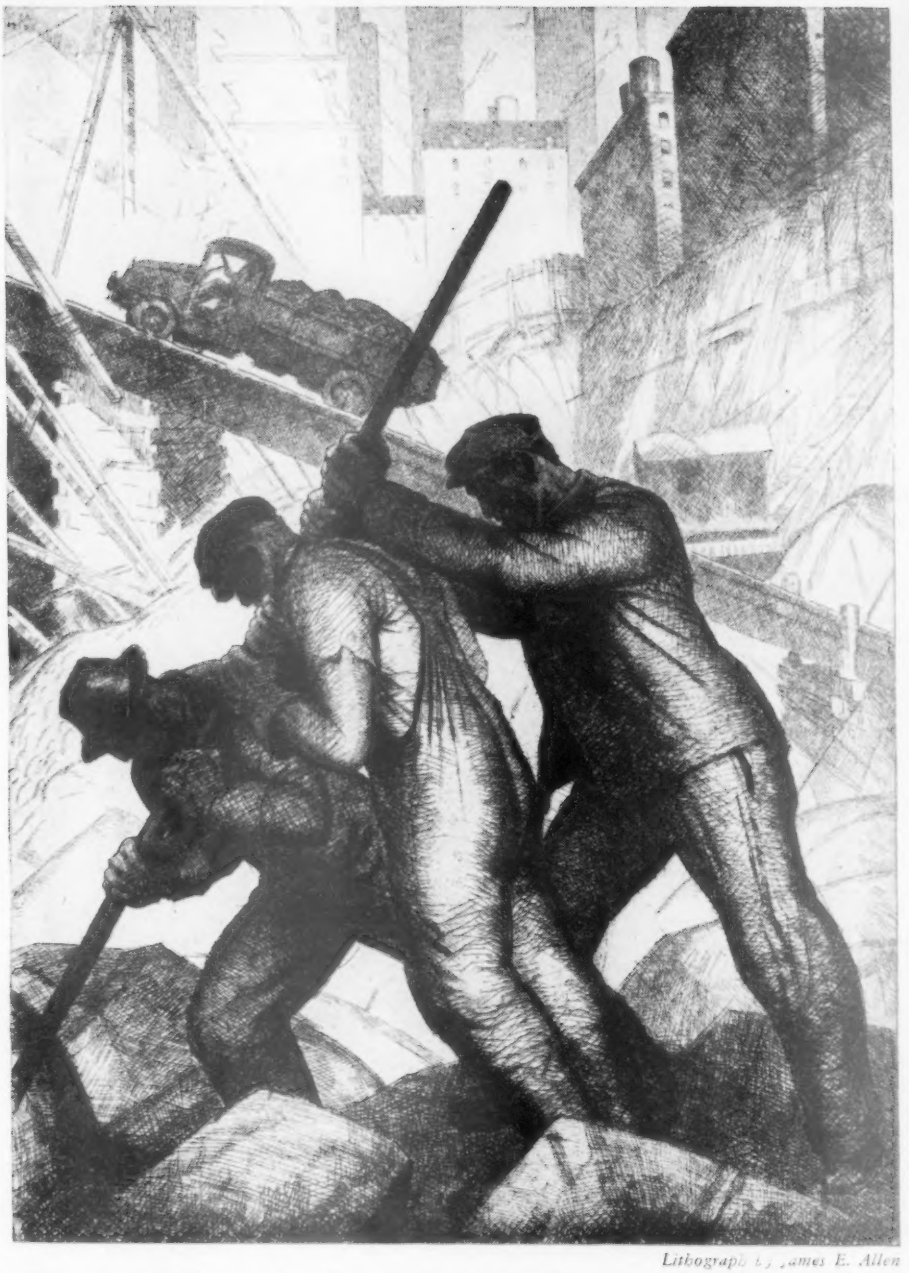
Express Receipt Used by New Departure

Copies Nos. 4 and 5 are quite similar to No. 1



Form 1927
NON-NEGOTIABLE—ORIGINAL
COLLECT
RAILWAY EXPRESS AGENCY, Incorporated
UNIFORM EXPRESS RECEIPT
Received from
NEW DEPARTURE
Division General Motors Corporation
BRISTOL, CONN.
To Destination Office
Receipt Number 31595
(853-E) Bristol, Conn. (E)
DO NOT USE THESE
NO. PKGS. VALUE DESCRIPTION OF ARTICLES
Order No.
Case No.
Original - Shipper's Receipt

ATTACH TO SHIPMENT
IF MORE THAN ONE PIECE USE EXPRESS AGENCY LOT LABELS
31595
(853-E) Bristol, Conn. (E)
NEW DEPARTURE
Division General Motors Corporation
269 N. Main Street
DELIVERY SHEET Collect
X
2 ANY SHIPMENTS GOING BY EXPRESS TODAY?
BRISTOL, CONN. 853-E COLLECT RECEIPT NO. 31595
NO. PKGS. VALUE DESCRIPTION OF ARTICLES WEIGHT
Order No.
Case No.
IF SHORTAGE OR DAMAGE EXISTS, NOTIFY EXPRESS AGENCY AT ONCE TO MAKE INSPECTION — VERIFY WEIGHT
DELIVERY SHEET — TO BE AFFIXED TO SHIPMENT



Lithograph by James E. Allen

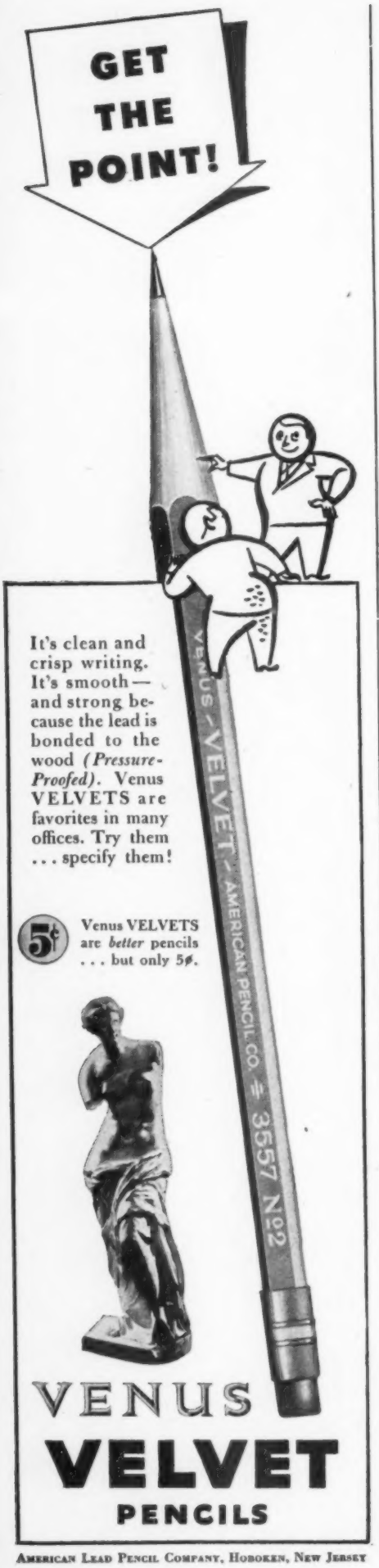
ONE COULDN'T DO IT ALONE!

No single one of us alone could have handled the problems arising from the serious wartime shortage of paper. With an all-out war with Japan ahead of us, it still needs the combined efforts of all concerned, from the mill to the ultimate user of paper.

Fortunately, the necessary cooperative spirit showed itself from the very start. Mills and distributors have worked together to spread out the supply as fairly as possible. Buyers of paper have shown an amazing degree of ingenuity in fitting the job to the paper available.

Out of this wartime teamwork has come a stronger industry, with a new awareness that the problems of one are the problems of all . . . to be best solved through continued cooperation. International Paper Co., 220 East 42nd St., New York 17, N. Y.

INTERNATIONAL PAPERS *for Printing and Converting*



(*Continued from page 232*)

The form is also used at the company's Meriden, Conn., plant.

In operating use, five copies of the form are used—Meriden making a sixth copy which is forwarded to the Bristol plant, which is general headquarters, where a master set of records is maintained.

Mr. Lee writes: "As we sell most of our products F.O.B. shipping point, we do not retain the original (No. 1) copy in our files. We send this to the customer with the invoice as the title to the property passes from us after we have delivered it to the express company and secured a receipt therefor.

"Copies 2 and 3 are retained by the Railway Express Agency when they sign for the shipment. No. 2 copy is affixed to the consignment by the Railway Express Agency. If there is more than one piece in the lot, Railway Express lot labels are attached to the remainder of the shipment.

"No. 3 copy (which is similar to No. 2) is retained by the Railway Express Agency, the upper portion of which is forwarded to their accounting bureau.

"No. 4 copy is retained in our shipping room files.

"No. 5 copy is sent by the shipping room to the traffic department for rating and other purposes incidental to traffic department procedure."

Redefine Commercial Printing

(*Continued from page 228*)

241 was based on Orders L-226 and L-54-c, however, it became necessary to redefine commercial printing specifically in L-241. To this end, an amendment provides that commercial printing means all printing and duplicating produced by any of the following types of machines.

Hand and automatic sheet and web-fed platen presses;

Hand and automatic fed plate engraving presses, and flat-bed cylinder presses;

Proof presses;

Sheet and web-fed rotary letter presses, offset presses, rotary gravure presses, and aniline-ink presses; Thermographic presses; and

Duplicating machines, including but not limited to ink ribbon, gelatin, spirit, stencil and reproducing typewriter principle machines and multilith and Davidson duplicators.

ANNOUNCE CURL-PROOF CARBON PAPER

A curl-proof carbon paper named Layrite, is announced by Write, Inc., 420 Lexington Avenue, New York N. Y. It is stated that the paper is not affected by temperature or humidity due to specially treated back which causes the sheet to remain smooth and flat. It is also claimed that the sheet does not "tree" or wrinkle.

HALT PUBLICATION OF COMICS

Publication of 37 comic magazines and five detective periodicals has been halted since February 5, 1945, when the War Production Board enlisted the aid of printers and distributors in a drive for enforcement of its magazine print paper regulation, Limitation Order L-244, WPB reports.

In addition, WPB has also notified 21 publishing concerns, producers of almost 40 magazines, that they have no consumption quotas. To halt the printing and sale of their publications, WPB's Printing and Publishing Division issued a notice to printers and distributors listing the names of the publishers and the titles of their magazines.

The comic magazines "Pop Pop" and "Twinkle" were among the first to be withdrawn recently from New York newsstands, when distributors were notified that the publishers lacked WPB quotas. On a recent list sent to printers and distributors are many additional tieles.

More than 5,000,000 copies of 17 comic and detective magazines were "frozen" before printing was completed or before they reached the newsstands. Now held in warehouses, these magazines may be sold as waste paper for ultimate conversion into V-boxes, containers for blood

(*Continued on page 236*)

CONTRACT TERMINATION FORMS AVAILABLE

FORM 0 Instruction Sheet
FORM 1 Settlement Proposal
FORM 1a Short Form Settlement Proposal
FORM 1b Settlement Proposal (Total Cost Basis)
FORM 4 Applic. for Partial Payment
FORM 2a Termination Inventory Schedule (Metals in Mill Product Form)
FORM 2b Termination Inventory Schedule (Raw Materials, Purchased Parts, etc.)
FORM 2c Termination Inventory Schedule (Work in Process)
FORM 2d Termination Inventory Schedule (Dies, Jigs, Fixtures)
FORM 3 Schedule of Accounting Information

All forms carried in stock for immediate shipment in any quantity. Samples and Prices on Request.

ADAMS PRINTING CO. 1260 W. 4th St. Cleveland 13, Ohio

How to keep the man who keeps the books



Ever hear of the manpower shortage?
And by the same token, ever hear of the stunts that many employers pull to keep their "good old faithfuls" happy?
Well, without going into the Vice President appointments, let us mention something that has always pleased a faithful bookkeeper... yes, even before the manpower shortage.
We refer, of course, to a sheet of paper... Atlantic Ledger.

After all, bookkeepers work on ledger paper morning and afternoon (and sometimes nights) day in and day out, month after month, year after year. And they want and need a ledger that is easy on the eyes...easy to write on with either pen or pencil...easy to use in a machine...a hard, smooth, durable paper that will take erasures without trouble.
Atlantic Ledger...in white, buff, or Eye Comfort is just that kind of paper. For samples, send for our portfolio of Eastern Fine Papers for Business.

Eastern
FINE PAPERS FOR BEST RESULTS
EASTERN CORPORATION, BANGOR, ME.

FOR GREATER ECONOMY · MAXIMUM SATISFACTION

Straubel
TEXTURIZED
TRADE MARK REG. U. S. PAT. OFF.
Paper Products



High Quality
Towels and Toilet Tissues
for Industrial Users

Texturized Towels
Three Leaf Towels
Texturized Roll Tissue
Convenience Cut Tissue
Alcove (Recess) Tissue
Three Leaf Interfold Tissue
Two Leaf Interfold Tissue
Sof-Leaf Interfold Tissue

Conserve — Waste none
War needs more paper now!

Straubel
PAPER COMPANY
GREEN BAY, WISCONSIN

(*Continued from page* 234)

plasma and K rations, bomb bands and other war materials, WPB said.

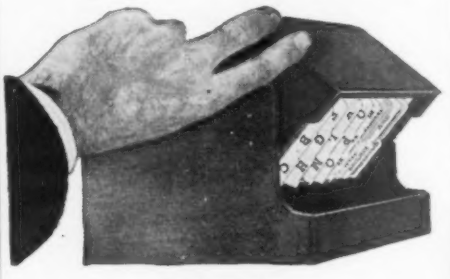
These actions resulted after WPB tightened its controls to smash black markets developed from inflated paper quotas, non-existent quotas, or illegal use and resale of paper quotas.

Most of the larger unauthorized operations involved a half-dozen publishers in New York and Chicago, WPB said. It is believed that no establsihed or nationally known publishers are involved and that the violations were practiced by a small fraction of an industry that otherwise has "faithfully observed wartime restrictions on paper usage," WPB officials reported.

Criminal action has been started against some of the publishers and other investigations are proceeding, WPB said.

ROCK-A-FILE CARD INDEX

Rock-a-File card files operated by a unique method of rolling open at the flick of a finger thus placing the entire contents instantly accessible and in full view are announced by the Rockwell-Barnes



Simple to Use

Co., 35 E. Wacker Drive, Chicago, Ill. The files are easily portable for they are but 15 inches in length whether in use or not in use. The width is but a fraction greater than that of a card even when in use. The file is also available in a Twin model which is of two cards width. They come in genuine walnut or standard green in three popular card sizes—3 x 5, 4 x 6, and 5 x 8. Both single (1200 cards capacity) and Twin (2400 cards) models use the broadside rocking open principle.

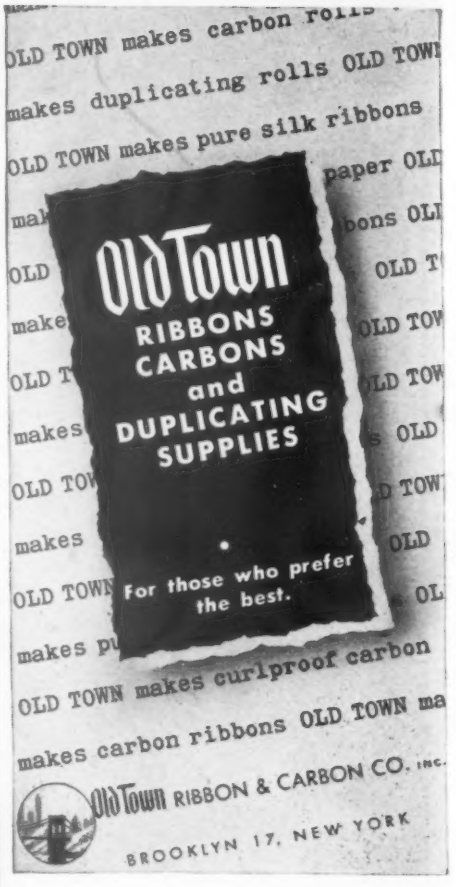
WPB PUBLISHING DIVISION APPOINTMENTS

Edward C. Von Tress, of Evanston, Ill. has been appointed acting deputy director of the War Production Board's Printing and Publishing Division, succeeding Donald G. Shook, Washington, D. C., who is retiring to private business, J. Hale Steinman, division director announced.

Charles J. Bevan has succeeded Mr. Von Tress as administrator of the Magazine Order, L-244, and as acting chief of the Magazine and Periodical Section, Mr. Steinman said.

Mr. Von Tress was formerly with the

(*Continued on page* 238)





Says clever little Joan:
"Cut colored tabs to suit each need
From handy MAK-UR-OWN."

GENUINE - ORIGINAL
MAK-UR-OWN
TRADE MARK REG. U. S. A.
CELLULOID
INDEX TABS



Write, type or print any index, slip into MAK-UR-OWN strip, cut to length and attach permanently in a moment. 7 colors, 3 widths; printed sets and die-cut tabs.

At your stationers.

Equip every desk with MAK-UR-OWN Index Tabs

THE VICTOR SAFE & EQUIPMENT CO.
INCORPORATED
N. TONAWANDA NEW YORK

The K E Y S you Love to Touch



As you sit down wan and weary,
With the outlook far from cheery . . .
Your book loaded with dictation notes and such . . .
It is mighty comfy knowing
That the rest is easy going . . .
On your Underwood,

with ***Keys you love to touch!***

You'll find ev'ry key you're striking
Has a touch that's to your liking,
In these days when working comfort means so much.
Without pounding, fuss or worry,
You can type things in a hurry . . .
On your Underwood,

with ***Keys you love to touch!***

It's a "smooth-as-velvet" feeling,
And your neat work is appealing
To the Boss, you want to please so very much.
For his picture's in each letter,
And you'll make that picture better . . .
On your Underwood,

with ***Keys you love to touch!***

Dear Boss:
It will pay you to buy her an Underwood. Not only will she be happier on the job, but she'll be able to turn out letters that are always neat and accurate . . . letters that will be a credit to your firm, and make a good impression wherever they are sent.



Underwood Corporation
One Park Ave., New York 16, N.Y.

Underwood . . TYPEWRITER LEADER OF THE WORLD!

Copyright 1945, Underwood Corporation

THERE'S SOMETHING ABOUT A BURROUGHS RIBBON THAT MAKES MY TYPING NEATER



I KNOW THE ANSWER. FINE FABRICS AND FINE INKS GO INTO BURROUGHS RIBBONS

You get the best in
BURROUGHS
CARBON PAPER
ROLL PAPER
RIBBONS

Burroughs' intimate knowledge of business machines in action established the exacting specifications of quality which characterize Burroughs supplies for all types and makes of business machines. The next time you need ribbons, carbon paper or roll paper, call your local Burroughs office. Ask for details on Burroughs Discount Purchase Plans which provide savings of 10% to 40% on your quantity purchases.

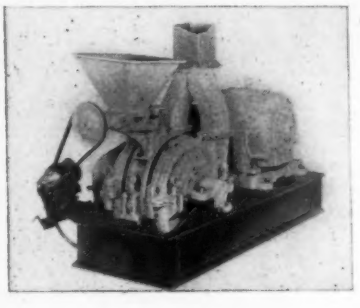
Burroughs
SUPPLIES FOR BUSINESS MACHINES
BURROUGHS ADDING MACHINE COMPANY

(*Continued from page 236*)

Curtis Publishing Co., and after 15 years' service in the Chicago office, resigned November 2, 1944, to take the position of chief of WPB's Magazine and Periodical Section and administrator of Order L-244. Mr. Von Tress served as a consultant in the Magazine Section before resigning from the Curtis Publishing Co. He is a graduate of Indiana University and has had a wide experience in both magazine and newspaper publishing during the last 20 years. He is a native of Vincennes, Ind.

Charles J. Bevan, of New York State, has been deputy chief of the Magazine and Periodical Section since December 4, 1944. Prior to that time he was a consultant for several months in the Magazine Section. Mr. Bevan resigned from Readers Digest when he bacame deputy chief of the section. His experience includes several years as vice president of the Cromwell-Collier Publishing Co., and as executive vice president of the Rumford Press.

FOR ULTRA-FINE POWDERS



MECHANICAL, screenless pulverizer for the production of ultra-fine powders from 1 to 25 microns, known as the Mikro-Atomizer, is announced by the Pulverizing Machinery Co., Chatham Road, Summit, N. J. It is said to produce particle sizes as low as 1 to 2 microns on certain materials. Unit is claimed to make for cooler operation.

BASIC "SCOTCH" CELLULOSE TAPE PATENT UPHELD

The basic "SCOTCH" Cellulose Tape patent of Minnesota Mining and Manufacturing Company has been upheld by the Federal District Court at Chicago.

In a decision dated May 28, Judge John B. Barnes of the United States District court, northern district of Illinois, eastern division, found for the plaintiff St. Paul concern in its action against International Plastic Corporation of Chicago, in which it charged infringement of its basic patent covering the transparent, pressure-sensitive tape originated by R. G. Drew and developed and marketed by 3-M Company for many years under the trade name, "SCOTCH" Cellulose Tape.

The plaintiff 3-M Company was held to be entitled to a permanent injunction.

Rock-a-File
REG. U. S. PAT. OFF. PATS. APPLIED FOR
FOR QUICK CONVENIENT CARD FILING



Use at desk edge, window ledge, small table . . .

THE TWIN—2400 CARDS

The newest most compact card file! . . . Handsome! . . . Handier! . . . Saves Space!

Rock-A-File's unique feature of rolling open broadside makes the difference. A flick of the finger puts the entire contents in full view, perfectly aligned and instantly accessible. Space is saved wherever it's used—on the edge of a desk, small table or window ledge—for *in use* or *not in use* Rock-A-Files are only 15 inches long, and the width increases but slightly when *in use.*



Single Model 1200 Cards

Rock-A-File Single and Twin Card Files are available in Standard Green or Genuine Walnut in the 3 popular card sizes. Order from your stationer or office supply dealer. Inquire about the sensational Rock-A-File Space-Saving Letter Files.

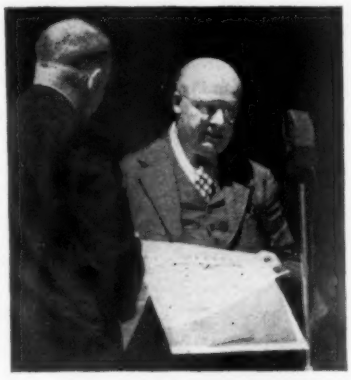
ROCKWELL-BARNES COMPANY
35 EAST WACKER DRIVE • CHICAGO 1, ILLINOIS

and an accounting against the defendants.

David A. Smart of Chicago, publisher of Esquire magazine, who is a principal stockholder of International Plastic Corporation, was also a defendant in the suit and the patent was likewise held infringed by him.

CROSBY—WIRTH DIVISION AWARDED CERTIFICATE OF MERIT

Another concern has been recognized for its especial contribution to the war effort. On May 7, the Honorable Augustus E. Giegengack, Public Printer of the United States, at a ceremony held at the



Public Printer Giegengack presents "Certificate of Merit" to General Manager Turner Lawrence

plant, presented the Government Printing Office "Certificate of Merit" to the Midwestern Crosby-Wirth Division of Moore Business Forms, Inc., and its employees, Minneapolis, Minn.

The "Certificate of Merit" was awarded to the company and its employees for meritorious service rendered the Government in the production of printing necessary to the war effort. The award was accepted on behalf of the company and its employees by Mr. Turner Lawrence, General Manager of the company, who extolled particularly the employees' contribution to the company's accomplishment in serving the Government Printing Office and other essential war industries with high quality product and for meeting emergency delivery schedules necessitated by the conditions of war.

GERMAN TYPEWRITER FACTORY MAKES MACHINES FOR U. S. ARMY

A captured German factory, capable of producing typewriters to write almost every known language, has already turned out more than 2,000 machines for the United States Army, according to reports from the European Theater of Operations.

Charts captured with the factory provide ample proof that the Germans had facilities to produce typewriters to write every modern language, including Bulgarian, English, Siamese, Persian, Arabion, Hebrew, Chinese and Finnish.

With a crew of 110 Belgian workers, the plant currently is producing about 35

(*Continued on page* 240)

When you want to KNOW . . . go to an expert!



BEST RECOMMENDATIONS for paper of quality . . . naturally would come from your printer.

Quality is every bit as important to him as to you. His work can stand or fall by the kind of paper he works with. And that makes him an *expert* judge of paper.

So—just ask his opinion of Rising papers. Stock for stock, their endorsement from printers tells its own story—that Rising papers simply do a *better* job than run-of-the-mill good paper.

In technical papers, too, Rising stands for performance and appearance that are better than good. Rising Paper Company, Housatonic, Mass.

Ask your printer . . . he KNOWS paper!

Rising Papers

Rising Papers

PRINTING AND TECHNICAL

BUILD *Prestige* WITH BETTER QUALITY LETTERHEADS!

FOX RIVER Fine Papers SINCE 1883 paper corporation
APPLETON WISCONSIN

Carefully expressed thoughts and precisely selected words, neatly presented on fine letterhead paper never fail to make a good impression - build prestige. Their value far exceeds the little extra time and cost involved.

For instance, Fox River Anniversary Bond, a 100% rag content paper, costs only 1/5 cent more per letter than 25% rag content paper and provides the best business stationery available...crisp, clean, brilliant and permanent. You can see its superiority instantly. Send today for free demonstration "See for Yourself" comparison kit. Kindly write on your business stationery.

THE WATERMARK IS YOUR QUALITY GUARANTEE... BE SURE IT READS "ALL-RAG"

FOX RIVER Fine Papers SINCE 1883

FOX RIVER PAPER CORPORATION
403-G S. APPLETON STREET
APPLETON, WISCONSIN

BOND, LEDGER, ONION SKIN — IN 25-50-75 AND 100% RAG CONTENT

typewriters a day, and these are made available immediately for Army use. Operation of the factory is under the supervision of the 64th Quartermaster Base Depot, a salvage organization.

Belgian workers did the skilled typewriter assembly work in the same plant under German supervision. An indication of the type of cooperation the Germans received is attested by the fact that with more than 400 civilian workers, the Germans managed to produce about 30 typewriters a day.

First estimates of the productivity of the typewriter plant were from 800 to 1,000 machines a month but with location of carloads of parts, tools, dies and other materials, it is expected that production will reach 3,000 or more typewriters monthly. A machine shop has been established and parts are being made from captured stocks.

ADDRESSOGRAPH-MULTIGRAPH PROMOTES C. L. COMEGYS

Promotion of C. L. Comegys to manager of its Research and Service division is announced by Addressograph-Multigraph Corporation, Cleveland, Ohio.

Mr. Comegys, in his new position, will function under the direct supervision of



C. L. Comegys

the company's chief executive and he will be a member of the Operating Committee. In taking over new and broader responsibilities, he will supervise and co-ordinate all of the research and service activities of the company, including field research, mechanical development, chemical research and development, Addressograph mechanical service and testing and Multigraph mechanical service and testing.

Mr. Comegys has served Addressograph-Multigraph for 24 years, having joined the company as a member of the sales and advertising department shortly after his graduation from the University of Missouri in 1921. He became assistant sales manager of the Addressograph division in 1936 and was assigned to head the Addressograph Methods Department in 1938 upon creation of that department.

OPA DIRECTORY OF COMMODITIES AND SERVICES

The fifth edition of the Directory of Commodities and Services, containing about 10,000 major commodities and services now under price control, as well as

(*Continued on page 242*)

To find **EMPLOYEE** *withholding* **TAX** **in** **ONE** *Simple*

Operation . . .



Paymasters of large and small organizations everywhere are using this easy, rapid tax-finder because it solves one of their most vexing problems. Sturdy, handsome, newly improved . . . with high legibility; protective binding that lengthens its life . . . plus this noteworthy feature: —

94% **of all computations right before the eyes**

DIAL ON REVERSE SIDE FOR 5 TO 10 DEPENDENTS

Here's how easy! Simply move Wage Dial to stated wage . . . and there sits the correct withholding tax smiling at you! Frankly, no payroll worker would be without E-Z DIAL Tax Finder, once its time-saving accuracy is discovered. Supplied with weekly, bi-weekly, semi-monthly or daily charts.

$4.95 LIST

Purchasing Executives Approve

REDIFIXT **W-2** **1945**

Witholding Tax Form

SERIAL #'s NO LONGER NECESSARY

(Ruling of Bureau of Internal Revenue, May 8, 1945)

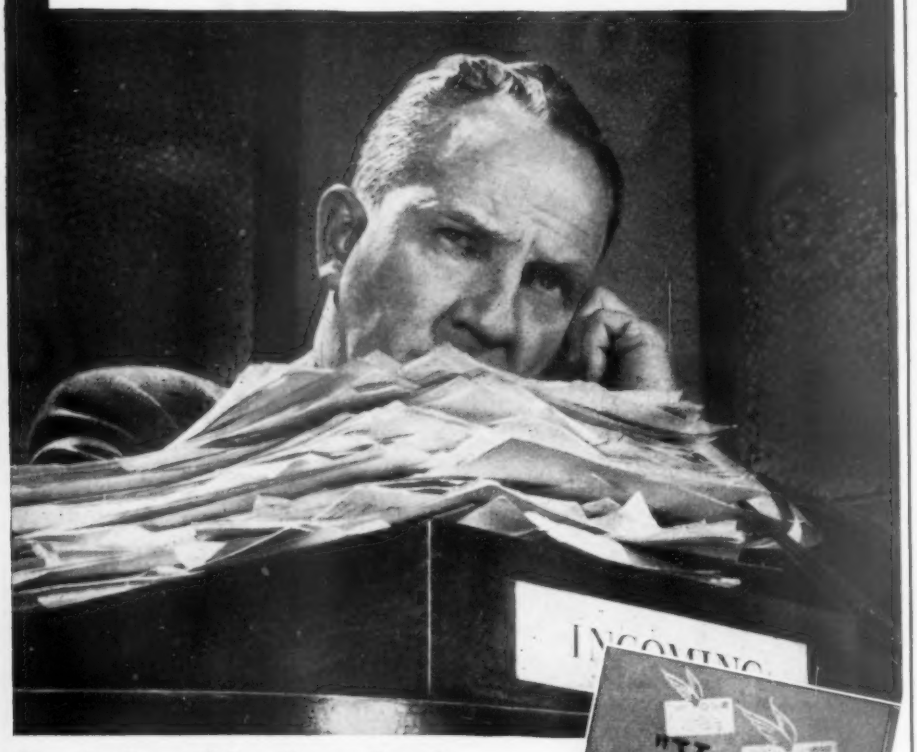
REDIFIXT for extreme convenience! One form that covers all details of Federal withholding, PLUS State reporting, PLUS Social Security. Carbon interleaved so that two copies for employees stay together. Imprinted to your needs.

NEW Open-faced Window Envelopes specially built for REDIFIXT W-2 Forms

Consolidated Business Systems, Inc.

30 Vesey Street Department 66 New York 7, N. Y.

IF YOU'RE SWAMPED WITH MAIL . . . LIKE THIS

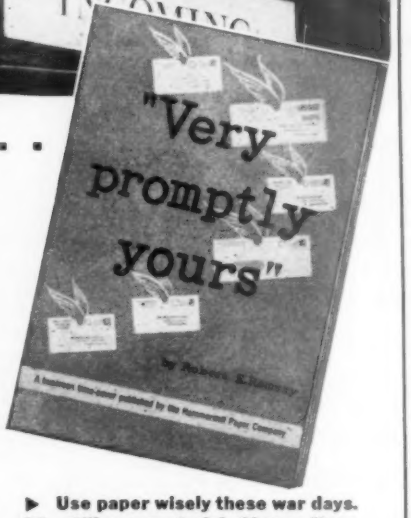


Send for this free book . . .

TODAY, when so many business transactions must be handled by mail, it is more important than ever to keep that "incoming" tray clean—keep the letters, memos and inquiries moving promptly to the people concerned.

Thousands of business men have found that Hammermill's management-idea book, "Very Promptly Yours," shows them how to put teamwork behind their letter-writing, route important correspondence through the office, and answer today's mail *today*.

You'll find it helpful, too. It's free. Just mail the coupon. No salesman will call.



▶ **Use paper wisely these war days. It's still war material. Choose Hammermill Bond for your office printing.**



(*Continued from page* 240)

other up-to-date information about the Office of Price Administration, has been issued by the OPA.

The directory may be obtained by interested persons at the cost price of $1.25, which includes six monthly supplements to follow. All requests must be made to the Superintendent of Documents, Government Printing Office, Washington, D. C.

The directory is designed to aid industry and the general public in keeping abreast of price regulations and in making ready contact with key persons in the operating units of the national office of OPA that handle each price control program.

PLASTIC SPOOLS FOR CARBON PAPER ROLLS

Spools for carbon paper rolls used on business machines are now cut from continuously extruded lengths of Tenite plastic, a cellulose acetate butyrate formula



Plastic Spools for Carbon Paper

made by the Tennessee Eastman Corporation. This innovation not only drastically reduces the amount of material used, but also cuts down on production time and cost.

The Tenite spool replaces one of wood which was made with a square hole to receive the square metal mandril used to turn the carbon role. The Tenite spool, extruded in tubular form, is provided with eight spines on the inner surface to grip the mandril and hold it in place. Tenite is light in weight, yet exceptionally tough. It is uniform in texture and therefore does not split or crack.

Another distinctive feature of the Tenite spools is their use of color. Four colors—gray, green, orange, and white—are employed to identify four grades of carbon paper.

BOOKLET DISCUSSES CONTAINER SITUATION TODAY

Now available, free of charge, is the new issue of "The General Box." This booklet, published by General Box Company, Chicago, is profusely illustrated in color and furnishes valuable information on the container situation today.

Of special interest to many manufacturers in this issue, is the story of the addition of a fifth star. Long noted for

(*Continued on page* 244)



Beautiful... but dumb

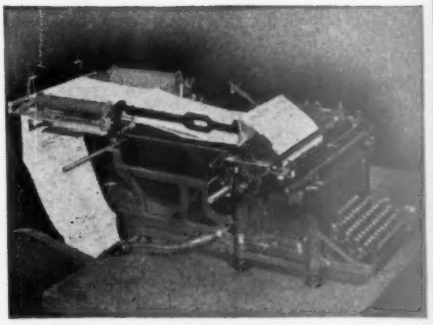
The hands of a typist! Beautiful, expressive, skilled hands . . . but such hands are stricken dumb, are no good to you when they're away from the keys of a typewriter.

And, too often, a typist capable of 70 words a minute is lucky to average 25 . . . forced to waste from 17 to 78 per cent of her time because of *you*.

How come? Simply by providing such skilled workers with obsolete forms. Time-wasting forms that must be fabricated by hand during office hours — aligned, carbon stuffed, set in position before typing can begin.

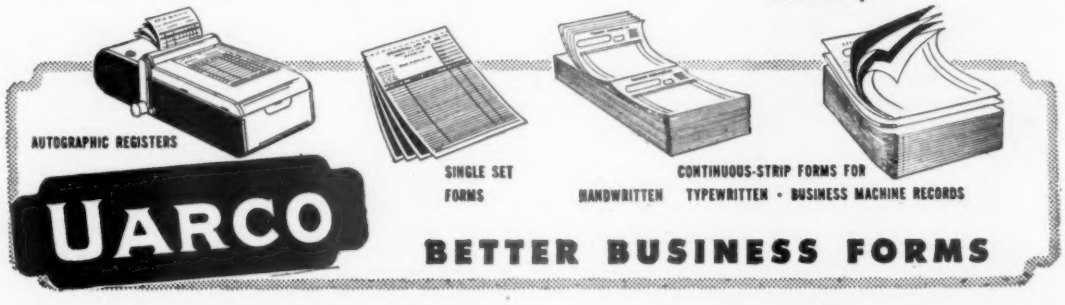
Check over the job the forms in your office are doing today. And you will be interested in what Uarco has to show you. For Uarco creates better forms . . . prefabricating carbons and papers that save time and money wherever forms are used.

Spend a half hour with a Uarco representative. He'll help you select the right forms . . . forms that allow your typists to keep typing.



Uarco Multi-Fold Continuous Strip Forms. They bring easy handling and loading to typewriters, bookkeeping or billing machines. Perfect alignment—carbon-positioned—consecutively numbered. This particular form provides legible, clean copies. Easy to set up, it feeds the machine while the typist types. For further information, write today.

UNITED AUTOGRAPHIC REGISTER COMPANY
Chicago, Cleveland, Oakland • *Offices in All Principal Cities*



COMMERCIAL FORMS AND SYSTEMS



An ally of modern management, Reynolds and Reynolds *is* one of the world's largest suppliers of printed or lithographed control and operational forms.

- CARBON INTERLEAVED SYSTEMS
- BUSINESS MACHINE FORMS
- PAYROLL CHECKS and SYSTEMS

Effective Advertising Literature, Distinctive Stationery and Business Forms of every kind

The REYNOLDS & REYNOLDS COMPANY • DAYTON 7, OHIO

Established 1866

SALES OFFICES IN MANY PRINCIPAL CITIES

(*Continued from page 242*)

its 4-star line of containers, General Box has now added a fifth star in recognition of its expanded facilities for production of corrugated containers.

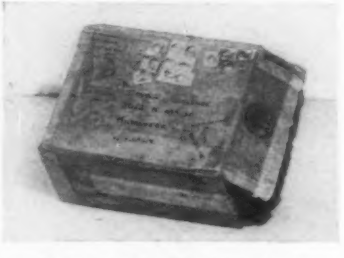
In addition to the facts given on corrugated containers, this issue of "The General Box" provides interesting reading about today's cleated corrugated, Watkins, and stitched panel containers, as well as nailed, all-bound, and wire-bound boxes.

Also, readers will find helpful the suggested uses for the various types of crates and boxes. Designed to provide product protection under all conditions, as well as being made with an eye to maximum strength with minimum weight, General Box containers expedite handling and cut down shipping costs. General Box Company, Chicago will furnish copy of booklet on request.

★ ★ ★

SAIPAN TO MILWAUKEE VIA NEW YORK

Even Uncle Sam's soldiers are well aware of the need for saving paper. Lt. Benjamin D. Mathon from a station somewhere in the Pacific, near the



Arrived in Good Condition

islands of Saipan or Leyte, shows how it can be done, even by a soldier. The corrugated fibre carton pictured here—and made by Inland Container Corporation—originally contained a gas mask issued to Lt. Mathon. Afterward, Lt. Mathon used the fibre container to ship a Japanese revolver back to the United States. He cut it down slightly in length, sealed it up and started it on its return trip. The carton seemingly traveled first to San Francisco, then to the islands of Saipan or Leyte, and on the return trip came back through San Francisco, St. Paul and New York, and then to the final address in Milwaukee. The photograph shows the carton after it had been opened finally. It arrived in first-rate condition.

★ ★ ★

TYPEWRITER RESTRICTIONS REMOVED

Restrictions on production and delivery of typewriters have been removed through revocation of Limitation Order L-54-a, the War Production Board announces.

Because all manufacturers have been heavily engaged in war production they have been unable to produce enough typewriters to meet essential military and industrial requirements. This necessitated regulation under L-54-a of distribution of

(*Continued on page 246*)

★ ★

Perhaps You Noticed We Changed Our Name



PLANT PURCHASING DIRECTORY

For Production, Purchasing and Engineering Executives

The new name, we believe, is more descriptive than "Plant-Production Directory" of the service our book renders its users.

Plant Purchasing Directory remains a purchasing directory especially designed for the use of industrial buyers, and is so used in 25,000 leading manufacturing plants. It contains only classifications of interest to you—a convenient, usable directory, giving you full information on sources for industrial products and chemicals—addresses and trade names—and a section on commonly required mechanical data. Easy to handle, easy to consult, easy to read.

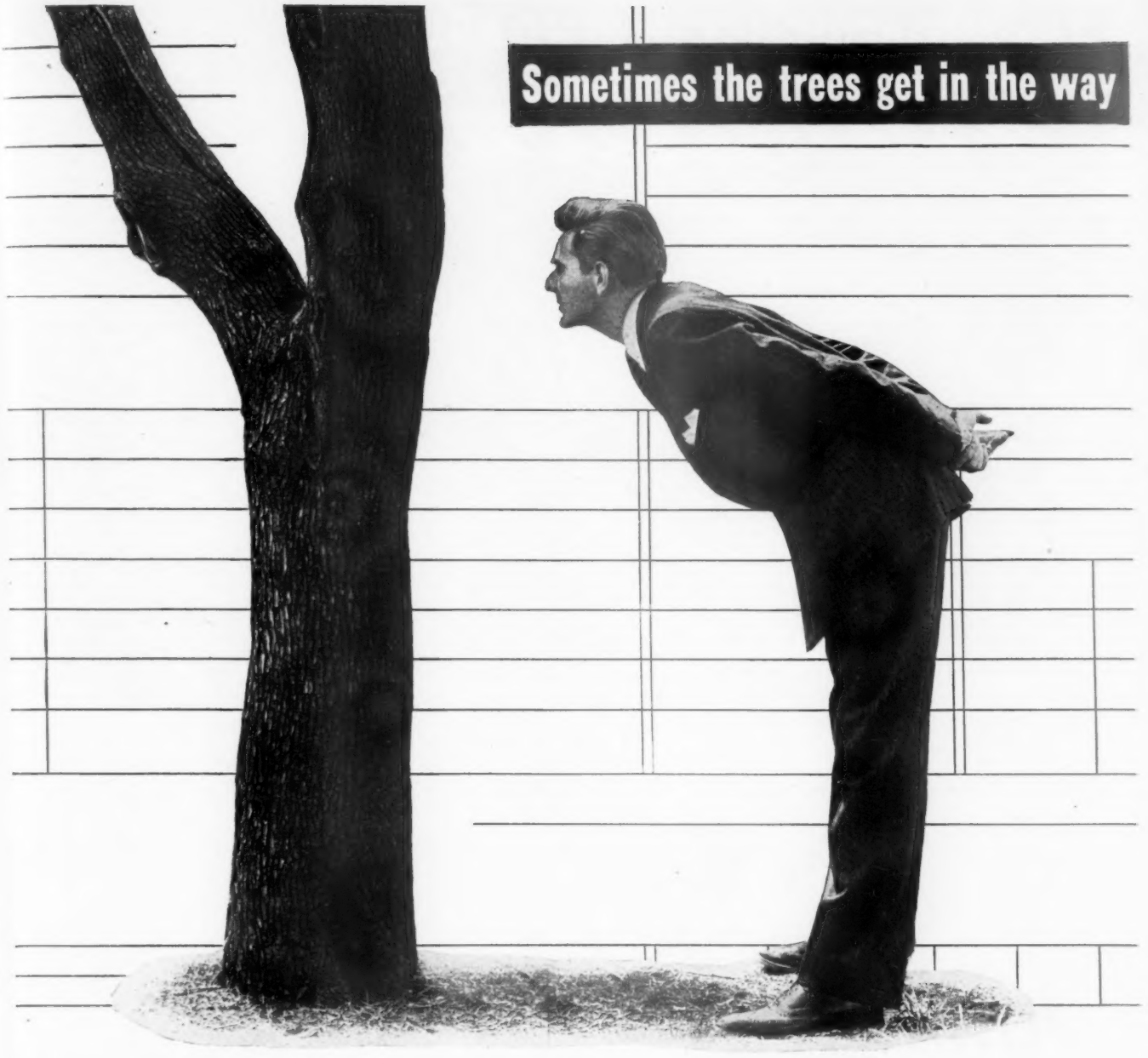
Small enough to keep on your desk—big enough to give you full information. Keep it handy.

A CONOVER-MAST PUBLICATION

PLANT PURCHASING DIRECTORY

FORMERLY PLANT-PRODUCTION DIRECTORY

333 North Michigan Avenue, Chicago 1, Illinois



ROUGHLY speaking, about 9 minutes of every wartime business hour go to waste because of inefficient business forms. Whose fault is it?

Sometimes the trees get in the way of the forest.

Sometimes executives are so close to the problem that what is plain to an outsider is hidden from them. Are the forms too complicated? Do they transmit only essential facts? Is the sequence of entries logical? Does the typist enter recurring information which instead should be printed?

These are questions the Moore Business Form specialist is trained to answer. He brings experience and a fresh outlook to your business form system. He marshals information; recommends changes; combines forms and doubles them up, so that one does the work of three or four. Then Moore designs the forms and prints in quantities of hundreds or millions.

The nine companies listed below have long been under Moore ownership. Now they are united under the Moore name — the largest company of its kind in the world. Service is nationwide, and available to the corner store or the corporation with many branches.

To speed your war output, to put all hands to work efficiently, perhaps to save thousands of dollars yearly, get in touch with the nearest Moore division, as listed below, or its local office.

AMERICAN SALES BOOK CO., INC., NIAGARA FALLS; ELMIRA, N. Y.
PACIFIC MANIFOLDING BOOK CO., INC., EMERYVILLE; LOS ANGELES, CALIF.
GILMAN FANFOLD CORP., NIAGARA FALLS, N. Y.
COSBY-WIRTH MANIFOLD BOOK CO., MINNEAPOLIS, MINN.
MOORE RESEARCH & SERVICE CO., INC., NIAGARA FALLS, N. Y.
SOUTHERN BUSINESS SYSTEMS, INC., ORLANDO, FLA.
In Canada—Moore Business Forms, Ltd., succeeding Burt Business Forms, Ltd., Toronto; Western Sales Book Co., Ltd., Winnipeg and Vancouver; National Sales Check Book Co., Ltd., Montreal

MOORE BUSINESS FORMS, INC.

ADV. BY N. W. AYER

The THOROUGHLY DEPENDABLE
Hamilton



H. R.
Model

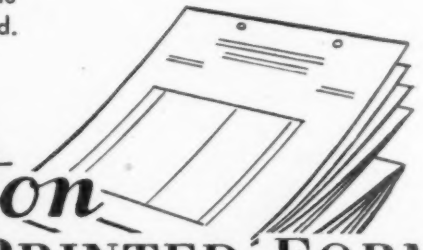
AUTOGRAPHIC REGISTER

Always skillfully designed,
expertly engineered for
nearly 60 years.



Hamilton
PORTABLE REGISTER

Light weight, scientific, durable
"write on the spot" record.
Very popular.



Hamilton
PRINTED FORMS

Millions of sets of Hamilton Printed Forms are used each year.
They insure accurate alignment; smooth rapid form writing.
Always get Hamilton facts before buying.

THE HAMILTON AUTOGRAPHIC REGISTER COMPANY
HAMILTON, OHIO Since 1887

(*Continued from page* 244)

the typewriters that could be made.

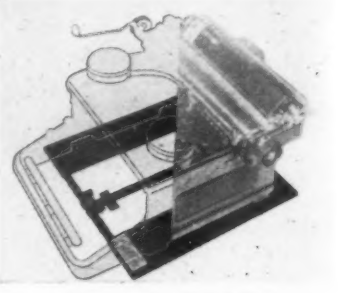
Some manufacturers of typewriters still are producing war materiel principally. Until these war production obligations are discharged by the completion or cancellation of important contracts, they will be able to reconvert their facilities and transfer personnel to typewriter production.

Authorization on Form WPB-1319 is no longer required for the purchase of a new typewriter.

NEW BASE FOR TYPEWRITERS

A revolutionary method of attaching typewriters to desks in business offices, known as the "Silent Sentry" typewriter base, is announced by Business Machine Products, New York, N. Y.

The use of the base permits the typewriter to be fastened to the desk—wood or steel—securely, yet to be removed quickly sumply by lifting the machnie off the desk. The base has a special cut-out center, making it possible for typewriter servicemen to make various repairs without unscrewing the machine from its position and then screwing it into place again.



New Typewriter Base

The "Silent Sentry" base also serves to silence the typewriter because of the heavy hair-felt pads which underline the base at the point where the typewriter's feet rest. The base makes it possible, too, to padlock the typewriter in place, guarding against removal or theft. It is made to accommodate any standard typewriter.

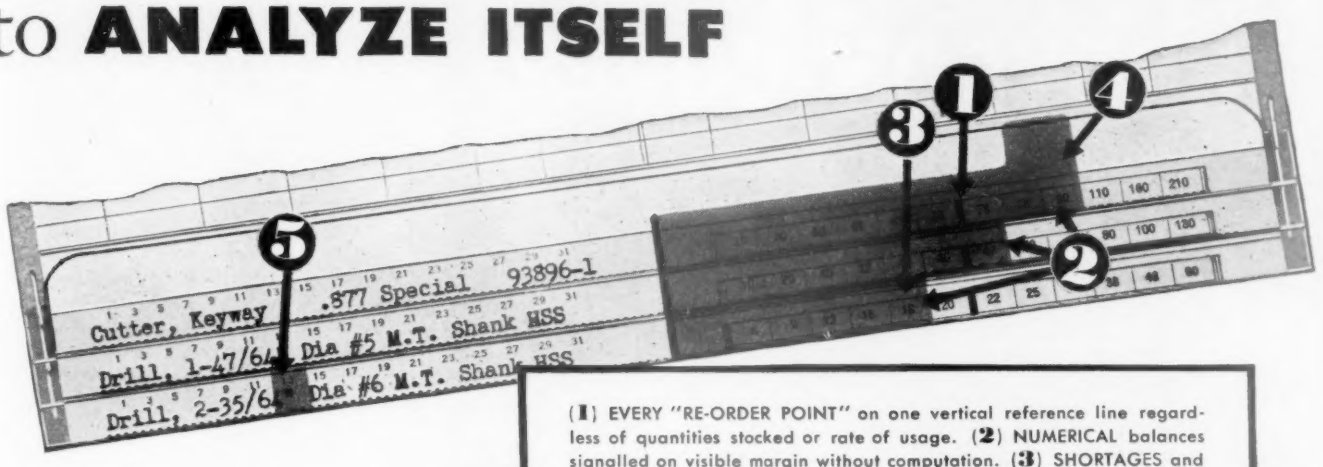
NEW PENCIL WITH BALL BEARING WRITING CONTACT

Using a miniature ball bearing as its writing contact, and a new process viscous ink, a new writing instrument which rolls the ink onto the surface dry, instead of inscribing it wet with a pen point, soon will be available to the Armed Forces, according to announcement today. The revolutionary new pen will be released for general sale as soon as production problems will permit, by Eversharp, and Eberhard Faber Corporation, who have received exclusive licenses for manufacture of the new pen in the United States.

The pen operates on the principle of capillary attraction. It is said to write

(*Continued on page* 248)

It takes a great Stock Control to **ANALYZE ITSELF**



(**1**) EVERY "RE-ORDER POINT" on one vertical reference line regardless of quantities stocked or rate of usage. (**2**) NUMERICAL balances signalled on visible margin without computation. (**3**) SHORTAGES and (**4**) OVERSTOCKS visibly charted, eliminating time-costly analysis. (**5**) FOLLOW-UP on orders placed expedites delivery.

KARDEX alone does it . . . and gives **STEWART-WARNER** better, simpler, faster maintenance materials control.

What to reorder, how much and when, is always clear as a picture in the great Indianapolis plant where Stewart-Warner produces a wide variety of heaters and ordnance materials.

In fact it *is* a "picture!" Newsreeling the facts of usage and balance for accurate control is Kardex—with Graph-A-Matic signalling and *Automatic Computing Inserts.*

This is the new Remington Rand development that *places the reorder point for all items in alignment.*

The need for item-by-item analyzing is ended . . . a glance reveals when any article should be re-ordered, when follow-up is needed and when overstocks threaten.

The marginal scale indicates *numerical* balances. Hence visible signalling reveals actual quantities on hand, and is accomplished with *no computation*—a direct "take-off" of the new balance at each posting.

Automatic requisitions supplement the extraordinary control Stewart-Warner obtains with this new visible record. These eliminate writing complete requisitions, end error-hazards, speed replenishment.

MANAGEMENT CONTROLLER No. 708 describes this new system as used for controlling raw materials, processed and purchased inventories, tools, office supplies and fixed assets. Ask our nearest Branch Office for it. We can apply this new development to most types of existing systems.

SYSTEMS DIVISION

REMINGTON RAND

31 Fourth Avenue, New York 10, N. Y.

COPYRIGHT 1945 REMINGTON RAND INC.

KROYDON COVER

TOUGH
SOIL RESISTANT
WATER REPELLANT
EYE APPEALING

for

CATALOGS
MANUALS
INSTRUCTION BOOKLETS
PORTFOLIOS
PROPOSAL COVERS

Kroydon Cover is distributed by leading Paper Merchants throughout the country

COMPANION COVER LINES
TWILTEX • LEATHERCRAFT • WOODTONE

HOLYOKE CARD & PAPER COMPANY
SPRINGFIELD 7, MASSACHUSETTS

KROYDON COVER IS

Nationally distributed through these recognized Paper Merchants

Write them for Specimens and Samples

ALBANY
W. H. Smith Paper Corp.
ALLENTOWN
G. A. Rinn Paper Co.
BALTIMORE
B. F. Bond Paper Co.
BIRMINGHAM
Jefferson Paper Co.
BOSTON
Arnold-Roberts Co.
Storrs & Bement Co.
BUFFALO
Alling & Cory Co.
CHICAGO
James White Paper Co.
CINCINNATI
Chatfield Paper Corp.
CLEVELAND
Central Ohio Paper Co.
COLUMBUS
Central Ohio Paper Co.
DALLAS
Southwestern Paper Co.
DAYTON
Central Ohio Paper Co.
DENVER
Carter, Rice & Carpenter Paper Co.
DES MOINES
Pratt Paper Co.
DETROIT
Central Ohio Paper Co.
GRAND RAPIDS
Carpenter Paper Co.
HAMILTON, ONTARIO
United Paper Mills
HARTFORD
Rourke-Eno Paper Co.
HOUSTON
L. S. Bosworth Co.
KALAMAZOO
Bermingham & Prosser Co.
KANSAS CITY
Bermingham & Prosser Co.
LONDON, ONTARIO
United Paper Mills
LOS ANGELES
Zellerbach Paper Co.
MILWAUKEE
Dwight Bros. Paper Co.
MINNEAPOLIS
Wilcox-Mosher-Leffholm Co.
MONTREAL, QUEBEC
McFarlane Sons & Hodgson
NASHVILLE
Clements Paper Co.
NEWARK
Lathrop Paper Co.
NEW HAVEN
Storrs & Bement Co.
Rourke-Eno Paper Co.
NEW YORK CITY
Alling & Cory Co.
Lathrop Paper Co.
Miller & Wright Paper Co.
Milton Paper Co.
Bulkley, Dunton & Co.
OMAHA
Field-Hamilton-Smith Paper Co.
PHILADELPHIA
Thos. W. Price Co.
J. L. N. Smythe
PITTSBURGH
Alling & Cory Co.
PROVIDENCE, R. I.
Storrs & Bement Co.
PORTLAND, OREGON
Zellerbach Paper Co.
RICHMOND, VA.
B. W. Wilson Paper Co.
ROCHESTER
Alling & Cory Co.
ST. LOUIS
Tobey Fine Papers, Inc.
ST. PAUL
Wilcox-Mosher-Leffholm Co.
SALT LAKE CITY, UTAH
Zellerbach Paper Co.
SEATTLE, WASH.
Zellerbach Paper Co.
SPOKANE, WASH.
Zellerbach Paper Co.
SPRINGFIELD, MASS.
Paper House of New England
SAN FRANCISCO
Zellerbach Paper Co.
TOLEDO
Central Ohio Paper Co.
TORONTO, ONTARIO
United Paper Mills
WASHINGTON, D. C.
Barton, Duer & Koch Paper Co.
WORCESTER
Storrs & Bement Paper Co.

(*Continued from page 246*)

with greater ease than the smoothest lead pencil, to write on cloth or paper submerged in water or in an airplane at the ceiling of stratospheric air travel without leaking; it writes on glossy paper, soft paper, blotting paper or cloth without spreading. The ink, being rolled onto the paper or other material, dries as soon as it contacts the writing surface.

Its miniature ball bearing writing contact will write in hair-line or in bold and heavy strokes. It is said that the pen cannot leak or drip, nor can ink be shaken out of it.

The ink cartridge of the pen will be made in several sizes, the largest of which contains at least a year's supply, enough for 257 continuous writing hours, and can be replaced with another cartridge in 20 seconds without staining the fingers. Refill cartridges in all sizes will be as readily available as safety razor blades. Ink color can be varied at will merely by changing cartridges. Cartridge refills, which will be sold separately everywhere, will come in washable or permanent ink and in all colors.

It is felt that in addition to public demand the new pen has a potential industrial field including laundries, in marking linens; for banks, hotels, textile manufacturers; for factories, for barographs and business machines, because of the long-lived ink supply, quick-drying and non-leak features and for many other business uses.

RESIN COATED FABRIC FOR LOOSE LEAF BINDERS

Leather-like appearance, and scuff and crack resistance are claimed to feature new synthetic resin coated fabric for loose leaf binders, named Terson, which has just been introduced by the Athol Manufacturing Co., Athol, Mass. Illustration shows binder bound in Terson which is also used as lining for inside of cover. The microscopic insert reveals texture. According to the manufacturer, the new Terson fabric eliminates many difficulties from the standpoint of durability and service. It is said to have longer wear,



Athol Company's New Resin Coated Fabric Binder

greater anchorage of film to basic fabric, high resistance to abrasion, less surface cracking of film at hinge, and tests showed that the cloth remained stable under drastic climatic changes along with high resistance to oxidation, water and sunlight. Coating can be applied to all types of cotton base fabrics and other textiles including synthetic types.

ANNOUNCE NEW SOLVENT-FREE SYNTHETIC ADHESIVE

The "Resyn" Division of National Adhesives has developed a solvent-free synthetic resin emulsion for adhering labels to "V" board, wood, and black or galvanized iron which also serves as a waterproof label overcoating. This product, in addition, has been found to adhere export labels firmly to synthetic rubber tires . . . a long-standing problem of that industry.

The adhesive is supplied in cold liquid form and can be diluted with water. When used as an overcoating, the emulsion "breaks" immediately, depositing a waterproof, transparent resin film on the surface. It neither clouds nor smears printing inks and his highly resistant to abrasion.

National's new adhesive can be applied by brush or gumming machine, is very fast setting and dries tack-free—even under high humidity conditions. It is identified as Resyn Adhesive Q3605.

This product complies with current Government specifications (such as AXS-1472) calling for the application of shipping and identification labels to various types of containers with a water resistant adhesive and overcoating them with a waterproof material.

REDUCTIONS IN AIR EXPRESS RATES

Many new reductions in air express rates are assured July 1 when the first supplement to nation-wide Tariff No. 8 goes into effect, the Air Express Division of Railway Express Agency announces.

An overall 40 per cent slash from current air express charges on magazines, newspapers and other periodicals is contained in the announced reductions.

Shortened airline distances, resulting from expanded service, have brought about rate reductions between many individual communities. In the case of El Paso, Texas, for example, reductions will affect traffic flown between that city and 109 other air express offices, the Agency pointed out.

New air express offices, including San Bruno, Calif., Van Nuys, Calif., East Point, Ga., Speedway, Ind., High Point, N. C., and Port Arthur, Texas, as well as many smaller ones adjacent to airport offices, will be affected by the terms of the supplement beginning June 10.

The many additions and other changes published in the supplement are indicative of postwar developments in the offing, the Agency explained.

Tariff #8 went into effect January 15.



How to treat a salesman

Pampering salesmen is a wartime phenomenon which won't last forever. Someday soon the Purchasing Agent will be asking again, "How good is the product?"

The F. S. Webster Company will welcome that day. For constant research, testing and development work have helped to build quality and durability into the complete line of Webster products. These extra values have appealed to purchasing agents for generations—and they have not been sacrificed during the war.

That's a good thing to remember the next time you order any of these items: carbon papers and typewriter ribbons; carbon papers for gelatine hektograph and spirit process duplicating machines; carbon paper ribbons for photo-offset work; ribbons and carbons for Elliott-Fisher, Addressing, Adding and International Business Machines.
F. S. Webster Co., 7 Amherst St., Cambridge 42, Mass.

WEBSTER'S
Micrometric Carbon Papers and Typewriter Ribbons

APPRECIATION of Quality



Wartime conditions — "victory models" — substitutions for strategic materials — all have made pencil users more and more critical of pencil quality. They look for and expect pre-Pearl Harbor perfection.

Whether it's a pencil or a tool, there is always the demand that it function smoothly, that it perform its task faster over a longer life span.

KOH-I-NOOR always has been and still is the accepted standard for *uniform* quality in pencils—whether it be for the technician, artist, office worker or student.

Send For Leaflet No. 11

KOH-I-NOOR PENCIL CO., INC.

Bloomsbury, New Jersey

Weldon Roberts Erasers

TRI-PLY Combines RED & GRAY RUBBER

NO. 399 TRI-PLY — The leading typists' eraser.

CENTER PLY—Soft gray ink eraser to erase single letters;

OUTER PLIES—Red rubber for erasing on originals and carbon copies.



NO. 3900 TRI-PLY "Whisk" — with new style brush.

Part of the complete quality line of

Weldon Roberts Erasers

Correct Mistakes in Any Language

WELDON ROBERTS RUBBER CO.

Newark 7, New Jersey

At All Stationers

3 Office musts



Write Today for Samples and Prices

Frankel Carbon & Ribbon Co.

DENVER 2, COLORADO

Fine Diamonds

For more than 32 years we have been selling Fine Diamonds. Whether your requirements are great or modest, you will find our Values outstanding.



Selections sent for inspection without obligation.

L. & C. MAYERS CO.

Diamond Merchants since 1912

545 FIFTH AVENUE, NEW YORK 17, N.Y.

PRINTERS MUST CHECK QUOTA CERTIFICATE WITH WPB

A printer's failure to check the validity of a publisher's paper quota certificate was held by the War Production Board's Appeal Board to be negligence on the part of the printer, in a decision announced by WPB.

The question was decided in denying the application by the Neo Gravure Printing Co., 601 West 26th Street, New York, N. Y. for permission to distribute 250,000 copies of a magazine called "The Guilty", published by the R. B. Leffingwell Co., whose address was given as 233 West Erie Street, Chicago.

The latter company supplied the printer with a paper quota certificate. A check with WPB would have shown that the publisher had no quota, WPB officials stated. Under an order of the war agency, all copies of the magazine may be sold only as waste paper scrap. The decision by the Appeals Board stated: "Appellant's hardship is self-imposed and not different from that of other printers who have dealt with unreliable promoters issuing invalid certificates of quotas."

This decision will affect the release of some 5,000,000 copies of 17 comic and detective magazines, already printed and frozen in stock under orders of WPB.

WPB-OPA DIGEST

Order on Typewriters Revoked—WPB—Restrictions on production and delivery of typewriters have been removed through revocation of Limitation Order L-54-a.

Unfavorable Outlook for Newsprint—WPB—The outlook for augmented newsprint quotas for newspaper use during the third quarter of 1945 is not too favorable at this time, according to reports after a meeting of a task group of newspaper publishers with J. Hale Steinman, director of the Printing and Publishing Division.

Comics Printing Halted—WPB—Publication of 37 comic and five detective magazines has been halted since February 5, 1945, when WPB enlisted the aid of printers and distributors in a drive for enforcement of its magazine print paper regulation, Limitation Order L-244.

Order L-241—Printing—WPB—Commercial printing Limitation Order L-241 still controls all types of commercial printing and duplicating.

Electric Office Machines—WPB—Limitation Order L-54-c, originally issued on March 14, 1942, to control production of all types of electric and non-electric office machines (exclusive of typewriters, formerly controlled by L-54-a, revoked), has been revoked.

Specialty Papers — WPB — Restrictions on the use and distribution of specialty papers, including glassine, greaseproof and vegetable parchment, have been removed by revocation of Conservation Order M-286, according to Paper Divn.

Two Ways to Solve Your Production Tag Problem



While primarily concerned today with a production job completely devoted to war work, you are probably *thinking* about those work-flow problems that will hit you right after peace comes. Whether you plan to resume the manufacture of a prewar product solely, or add new lines, you know you want your new factory operations to be systematized from start to finish.

That's where Dennison comes in. A properly designed tag or label as an integral part of your system can do a lot to banish worries of raw materials control, production routing and scheduling, inspection, payroll data tabulation or shipping records. So even though you're still in the blueprint stage, put your problems up to

Dennison

PAPER PRODUCTS FOR MORE THAN A CENTURY



We're in war work, too. In fact, that work has added considerably to our long experience in designing system tags and control tickets for the leaders of American industry. It also prevents us from offering more than help in development work at this point. But if you'd like to plan today in preparation for tomorrow, write Dennison, 79 Ford Ave., Framingham, Massachusetts.

TAGS · LABELS · SEALS · SET-UP BOXES · MARKING SYSTEMS · PAPER SPECIALTIES

PERSONALITIES in the NEWS

M. L. Lampe, Assistant General Purchasing Agent of the Armstrong Cork Company, Lancaster, Pa., has been named General Purchasing Agent to succeed R.



M. L. Lampe

A. Barton who has retired after 30 years of service with the company. R. H. Bowman, formerly Purchasing Agent, has been appointed Assistant General Purchasing Agent.

Mr. Barton, who reached the company's retirement age of 65 last Fall, has been Armstrong's General Purchasing Agent since 1929, and in that capacity he has supervised the expenditure of many millions of dollars for raw materials and supplies needed in the company's operations. He entered the company's employ in 1915 when he took charge of the Order Department of what then was known as the Linoleum Division (now Floor Division). In 1918 he was appointed Purchasing Agent and in 1929 he became responsible for all of the company's purchasing.

Mr. Barton is a member of the Purchasing Agents Association of Philadelphia. He served two years on the Board of Directors of the Philadelphia Association and one year on the Legal Committee of the National Association of Purchasing Agents. He is a member of the Mixers Club of Philadelphia and is president of the "Sodbusters Association of America", a golfing organization.



R. A. Barton

Mr. Lampe entered the company's employ in 1920 and has been a member of the Purchasing Department since 1921, acting as Assistant General Purchasing Agent since 1937. Mr. Bowman started work with the company in 1922 and has been in Purchasing since 1926, becoming a Purchasing Agent in 1939.

George N. Powell succeeds Anthony Davia as Purchasing Agent for the Dravo Corporation, Neville Island, Pittsburgh, Pa. Mr. Davia, an employee of the company for 47 years relinquished the duties of Purchasing Agent to accept an assignment in a new field of special duties on behalf of the corporation. He has been very active in the affairs of the Purchasing Agents Association of Pittsburgh, serving on various committees. Mr. Powell joined the Dravo organization in March 1942 and in August of the same year was appointed Purchasing Agent at the Corporation's Wilmington, Del. shipyard. Previously he was associated with the General Electric Company and worked at their plants at Schenectady, N. Y., and Bloomfield, N. J.

H. A. Schimberg has been promoted to Director of Purchases for the LaPlant-Choate Manufacturing Co., Inc., Cedar Rapids, Ia., pioneer manufacturers of



H. A. Shimberg

bulldozers. He will have complete responsibility for all the company's purchases and procurements and in addition will supervise the work of the Sub-Contracting Department. He has been with the LaPlant-Choate for three and one-half years.

Louis L. James, Assistant City Purchasing Officer, Houston, Tex., has been appointed Purchasing Agent, succeeding Roy Oakes who was appointed city controller.

H. E. Nye, Purchasing Director for the Delco-Remy division of General Motors Corporation, addressed luncheon meeting of the Kiwanis Club of Bloomington, Ind., recently, speaking on the subject "Phases of Industrial Purchasing."

Horace Bolding succeeds Henry McGee as Purchasing Agent for Braniff Airways, Dallas, Texas. Mr. Bolding has been associated with the company for ten years.

Nathan Alexander was recently elected Vice President in Charge of Purchasing of the American Safety Razor Corporation of Brooklyn, N. Y. Mr. Alexander



N. Alexander

started as clerk with the company in October of 1920 and was appointed Assistant Purchasing Agent in 1924. He was made Purchasing Director of the company in 1931. He is a member of the executive committee of the Purchasing Agents Association of New York.

William B. Foulk has been appointed Purchasing Agent of Princeton University, Princeton, N. J., succeeding Fred R. Apgar, who has retired. Mr. Foulk was curator of Frick Chemical Laboratory, Princeton Chemistry department. Mr. Apgar joined the university staff in 1899 and his term of service is said to be the longest on record in the university administration. He started in the treasurer's office and became purchasing agent in 1920 when the university established a central bureau to handle the purchases of the various departments.

Robert Chandler Kelly was appointed Director of Purchases of Dresser Industries, Inc., Cleveland, Ohio, in 1944, coming from a similar position with Food Machinery Corp., Los Angeles. A Second Lieutenant of infantry in World War I, Mr. Kelly has specialized in purchasing

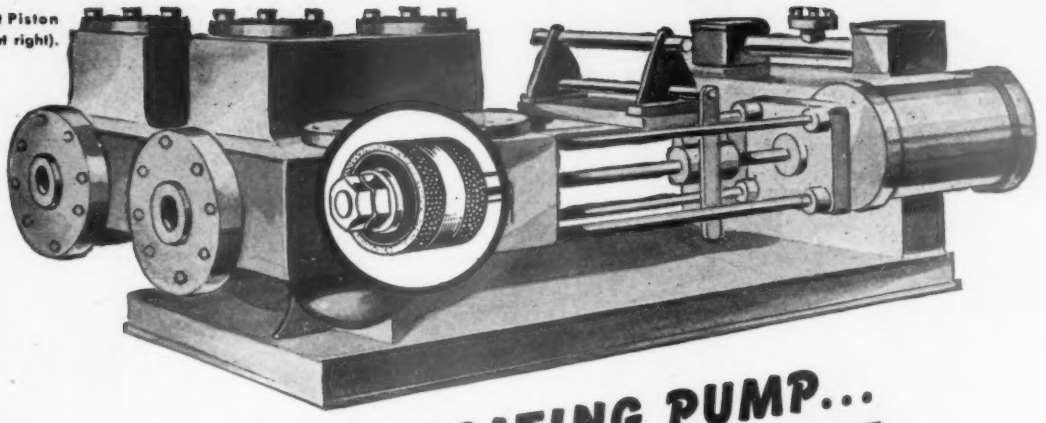


R. C. Kelly

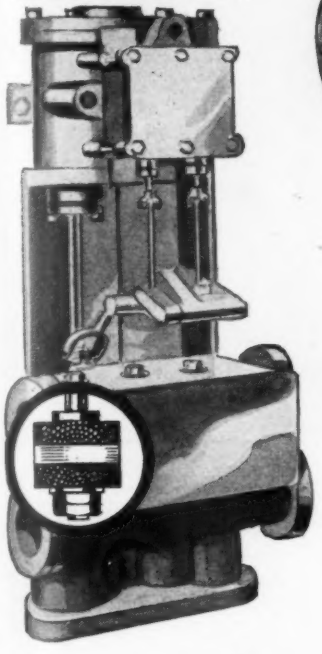
problems since 1926 when he became General Purchasing Agent of the Converse Rubber Co., Malden, Mass. After 15 years with this concern and its affili-

(*Continued on page* 254)

Twin Valve-Pot Piston Hot Oil Pump (at right).



Vertical Duplex General Service Pump (below).



EVERY RECIPROCATING PUMP... EVERY HYDRAULIC CYLINDER... EVERY AIR CYLINDER...

works better with TRADE MARK PUMCUP PACKING

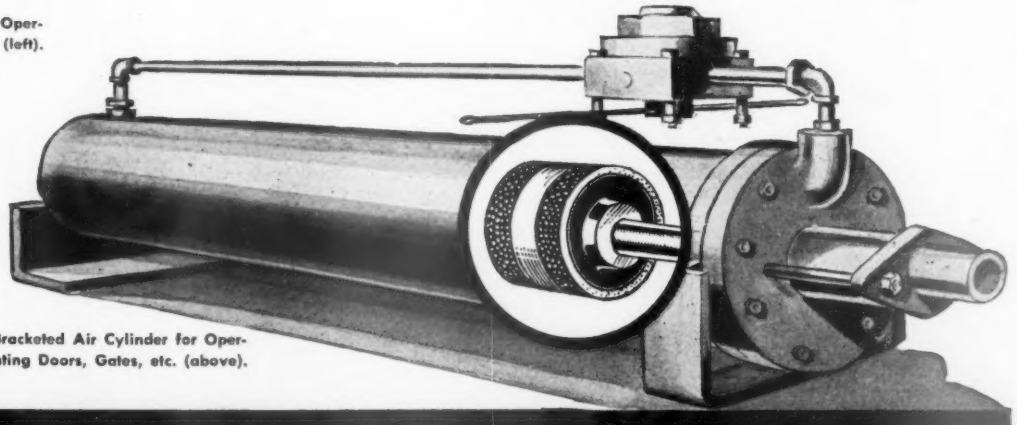


● Darcova Pumcups are long-lived composition cups for packing pistons of reciprocating pumps, pneumatic and hydraulic cylinders. They outlast other types of packing in water, oil, gas, brine, sewage, cement slurries, syrups, refrigerants, mash, chlorine, CO_2, many acids and alkalies, practically all commercial fluids.

Pumcups save "down time", cut frequency of repacking, save labor and materials. In pumps, they increase pumping efficiency, save power. They are used in hundreds of plants—refineries, railroads, power plants, chemical plants, food plants, steamships, distilleries, breweries, pipe line stations, manufacturing plants of every type.

For full information on Pumcups, send for free bulletins—No. 4401 if you have reciprocating pumps, No. 4502 if for hydraulic and pneumatic mechanisms.

Pendant Air Hoist Operating on Trolley (left).



Bracketed Air Cylinder for Operating Doors, Gates, etc. (above).

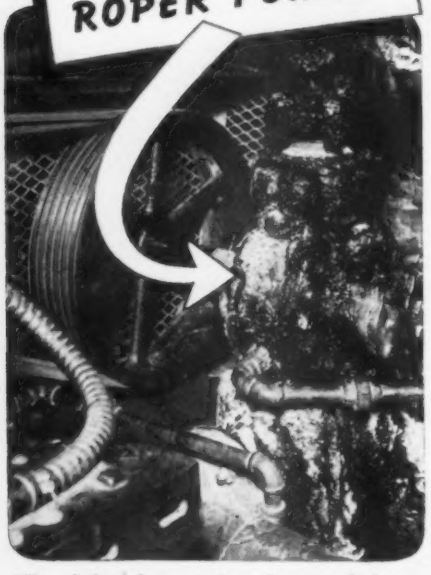
DARCOVA TRADE MARK

THE ORIGINAL COMPOSITION CUP

DARLING VALVE & MANUFACTURING CO.

WILLIAMSPORT, PA.

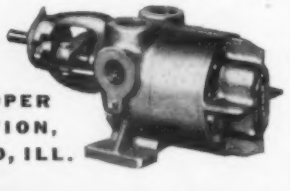
HANDLING A HOT AND HEAVY JOB FOR 20 YEARS with ROPER PUMPS!



The job of pumping hot and heavy liquids is no pushover . . . it's about as tough as they come . . . yet the Roper illustrated above has been in continuous service for over 20 years. . . This pump, and 7 others like it, are pumping asphalt at 500° temperature and hot oil at 600°, 24 hours a day, 6 or 7 days a week at the Weaver-Wall Company plant, Cleveland, Ohio. Their report is, "Service amazingly satisfactory at remarkably low maintenance cost".

ROPERS ARE ENGINEERED TO FIT INDIVIDUALIZED REQUIREMENTS 13 Sizes . . . 3 Series . . . Standard drives and mountings to fit every job. Capacities 1 to 300 g.p.m., pressures up to 1000 lbs. p.s.i. Service offices in principal cities. Ask for facts about Free Engineering Service.

WRITE FOR BOOKLET **"How To Solve Pumping Problems" and Catalog No. 7-37.**



GEO. D. ROPER CORPORATION, ROCKFORD, ILL.

ROPER
Rotary Pumps

(Continued from page 252)

ates, the Hodgman Rubber Co., Framingham, Mass., he moved to Las Vegas, Nevada, as Director of Purchases for Basic Magnesium, Inc., and subsequently to Los Angeles with Food Machinery Corp., in a similar capacity.

A. H. Phelps, Vice President in charge of Purchasing for the Westinghouse Electric Corporation, addressed a recent meeting of the Sales Executives' Club of Pittsburgh on "Salesmanship and Purchasing Postwar."

Noble R. Shaw, Purchasing Agent and manager of the feed and seed division, Crabbs Reynolds-Taylor Feed & Seed Co., Crawfordsville, Ind., has been named a director of the Indiana Employment Security Division.

James R. Clark has been promoted to Assistant Purchasing Agent, Barcalo Manufacturing Co., Buffalo, N. Y., according



to announcement by George D. Rutherford, Purchasing Agent. Mr. Clark joined the Barcalo organization in 1933 and since that time has been traffic manager, and has also assisted in the sales department.

John Bunker is now Purchasing Agent for Mason, Ehrman Co. at Klamath Falls, Ore.

Mrs. Hazel W. Dwinnell has resigned as Purchasing Agent for the Seattle Brewing & Malting Company.

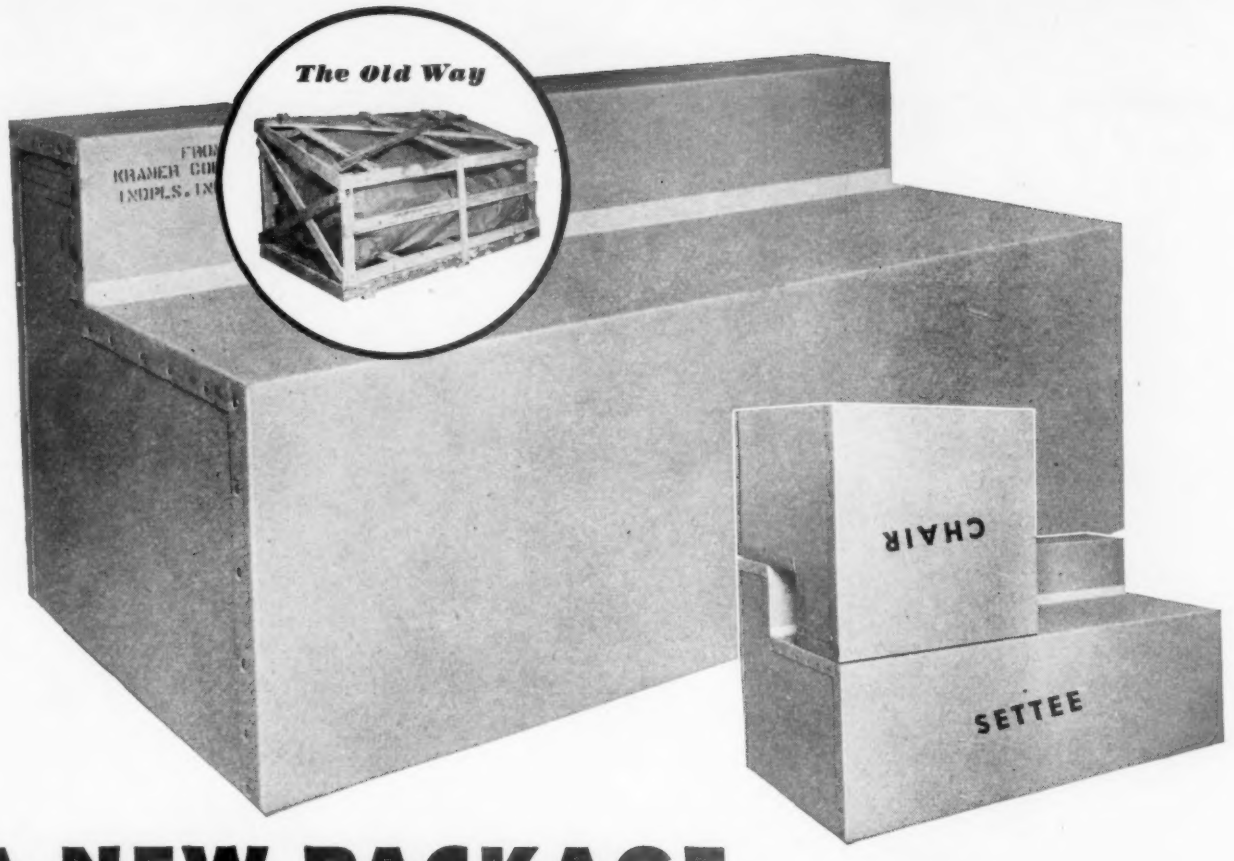
Dean H. Banta, Purchasing Agent, Inland Empire Paper Co., Millwood, Wash., has taken leave of absence and volunteered for military service. J. O. Stout is now handling the purchasing.

Harry Rooney, Purchasing Agent for Potlatch Forests, Spokane, Wash., recently addressed a chamber of commerce luncheon meeting on the problems of the purchasing agent in war time.

Joseph Krabec, buyer, Purchasing Department, Kellogg Switchboard & Supply Co., Chicago, is the second Purchasing Department member of the company's Veteran Employees Club, mentioned in the June issue of PURCHASING Magazine, of which Purchasing Agent John Geiger is president. Membership is limited to employees who have been with the company 15 years or more. Mr. Geiger has been with the company since July 1900, and Mr. Krabec entered the service in December 1915.

(Continued on page 258)





A NEW PACKAGE

designed by INLAND

● In the furniture industry, the "packaging" of overstuffed suites has always presented a real problem. Inland engineers have solved this problem, as shown in the illustrations above.

The new Inland package for overstuffed furniture gives greater protection, costs substantially less than the old methods of crating for shipment. The package is neater. Saves time and labor cost in packing. The Inland "package" reduces freight costs—it is much lighter in weight.

SAVE SPACE

Among the many advantages of the Inland "package" for overstuffed suites is the design which permits them to be nested—one on top of the other. The illustration above shows a chair (upside down) stacked on a settee. Two chairs could be stacked together equally well—or two settees.

This new INLAND design gives maximum protection, and saves space during transit or in storage.

INLAND CONTAINER CORPORATION



INLAND

CORRUGATED FIBRE BOXES

INDIANAPOLIS, IND. • MIDDLETOWN, OHIO • EVANSVILLE, IND. • MILWAUKEE, WIS. • DETROIT, MICH.



U. S. Army Signal Corps Photo

Helps Flame Throwers Throw Japs



The part that parts play in PRODUCT PERFORMANCE

The portable flamethrower resembles a giant blowtorch. It consists of fuel and pressure tanks strapped to the operator's back and connected by a short hose to a rod-like discharge piece carried in the hands like a rifle. The pair of fuel tanks holds heavy oil, and an attached cylinder contains compressed air or nitrogen. A small cylinder containing hydrogen is fixed to the flamegun. This is the "pilot-light" to ignite the fuel oil. The operator fires by squeezing a trigger valve at the rear of the flamegun. This valve allows the fuel oil to spurt through the nozzle, catching fire as it mixes with the hydrogen flame. A vital part of the flamethrower is the small synthetic rubber portion of the valve diaphragm. The bond between rubber and metal must be leak-proof. Exacting specifications for compounding, molding, and bonding the synthetic rubber to the steel yoke and sleeve of the valve diaphragm are met successfully by The Ohio Rubber Company (ORCO). This is another demonstration of what we mean by "ORCO-OPERATION". . . the kind of cooperation YOU can expect when you seek competent and complete service on rubber requirements.

"ORCO-OPERATION" BRANCHES: DETROIT • NEW YORK • CHICAGO INDIANAPOLIS • WASHINGTON • CLEVELAND

THE OHIO RUBBER COMPANY · WILLOUGHBY, OHIO

What to use . . .

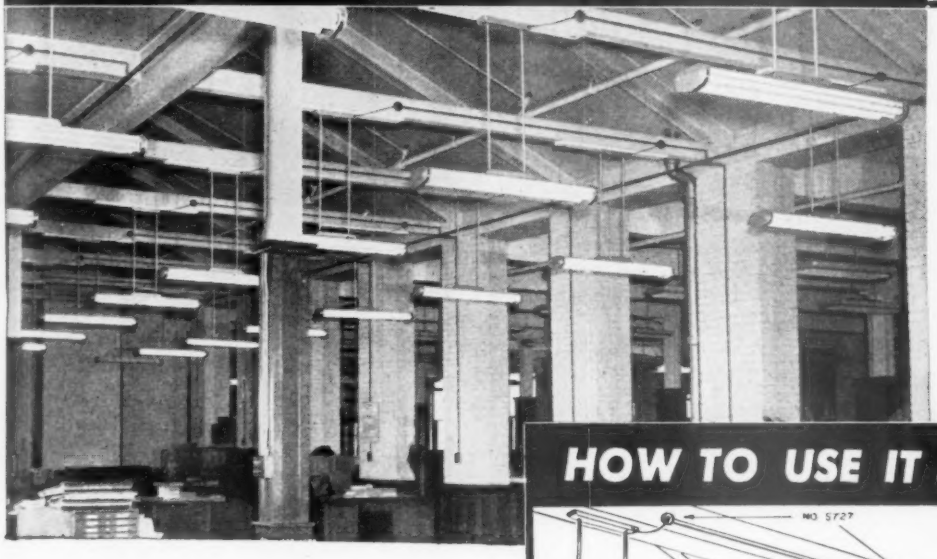
for convenience, economy, efficiency . . in the installation of modern lighting systems, whether incandescent, fluorescent or newly developed light sources are specified.



WIREMOLD *surface* METAL RACEWAYS

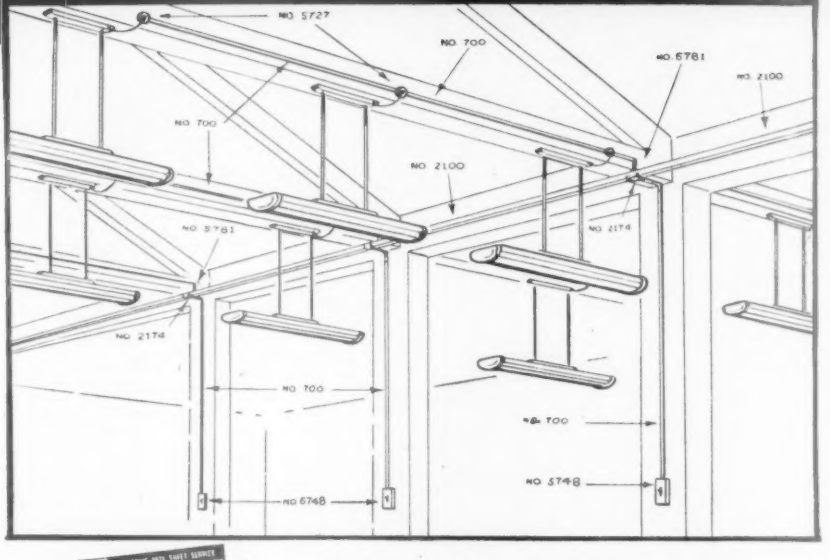
A complete series of basic surface raceway wiring systems . . . each with its own range of installation fittings . . . interconnectable one with another and with already installed wiring.

WHERE TO USE IT . . .



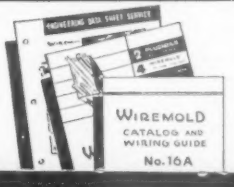
In this photograph is shown a typical use of Wiremold 2100 and 700 raceways with their installation fittings in wiring a building of mill type construction for fluorescent lighting units. Note the wide adaptability of Wiremold in handling a difficult ceiling installation and the convenient arrangement of switch controls on the building columns.

HOW TO USE IT . . .



Diagrammatic drawing shows the fittings used in this type of installation and emphasizes the interconnectability between the different sizes of raceway, which is an important feature of Wiremold. By using the various sizes of Wiremold raceways, interconnecting with each other and with existing wiring installed in the building, it is possible to plan a complete wiring layout from panelboxes to outlets with maximum economy in material and in time of installation. Write to The Wiremold Company, Hartford 10, Conn., for a copy of the Wiremold Catalog and Wiring Guide #16A and Engineering Data Sheets covering this type of installation.

THE WIREMOLD COMPANY
Hartford 10, Connecticut



PRODUCTION EXECUTIVES

There are many unusual ways in which Wiremold can help you save motions, speed production and assembly through efficient "wiring for work". Write us for Wiring Guide, industrial bulletins and data sheets.

KNOW YOUR WIREMOLD . . .

BUSINESS BUILDER IN TOMORROW'S MARKET FOR ADEQUATE WIRING



TIGHT VALVES CONSERVE FUEL

PREVENT HOLD-UPS IN PRODUCTION

LUNKENHEIMER VALVES STAY TIGHT WITH LESS CARE

With today's production problems and the urgent necessity for conserving fuel, it is more important than ever to avoid wasteful, costly, production-lowering valve leakage. It's good business to maintain a regular check on valves, to make sure that they are *tight* and in proper working order. Maintenance men prefer Lunkenheimer Valves. They know these *quality-built* Valves serve longer and better on the job—are easier to keep tight with a minimum of time, labor, and expense.

The Lunkenheimer Co., Cincinnati 14, Ohio, U. S. A.—*Branch Offices:* New York 13, Chicago 6, Boston 10, Philadelphia 7. *Export Department:* 318-322 Hudson St., New York 13, N. Y.



A Lunkenheimer Distributor is located near you, ready at all times to assist with your maintenance and operation problems. You will profit by using his service.

LUNKENHEIMER VALVES

BRONZE, IRON, STEEL AND CORROSION RESISTANT ALLOY VALVES, 125 TO 2500 LB. S. P.; BOILER MOUNTINGS, LUBRICATING DEVICES, AIRCRAFT FITTINGS

(*Continued from page* 254)

been with the company since July 1900 and Mr. Krabec entered the service in December 1915.

Arthur W. Horton has been named temporary Purchasing Agent of the Town of Watertown, Mass., the office having been recently established by the Town Meeting.

David T. Face is now Purchasing Agent for the Schauer Machine Company, Cincinnati, Ohio.

J. A. Rumpsa has been appointed Director of Purchases of the Young Radiator Company, Racine, Wisconsin. Previous to



his affiliation with this company he was Assistant Purchasing Agent for the Illinois Malleable Iron Company of Chicago, following which he moved to California to go into business for himself, and in 1929 he joined the staff of the purchasing department of the Caterpillar Tractor Company.

Lloyd D. Richards is now Purchasing Agent of Couse Laboratories, Newark, N. J.

C. W. Gilchrist, Purchasing Agent, Goodyear Tire and Rubber Co., Topeka, Kans., is a member of a permanent management organization created by L. E. Spencer, general superintendent, to assist him in operating the plant. The group is known as the "Factory Council", which is committed to maximum war time production as well as rapid conversion of the Topeka plant to peacetime tires after the war.

Louis Ward has been appointed Purchasing Agent, Parris-Dunn Company, Clarinda, Iowa. Previously he was associated with the U. S. Rubber Company at its Des Moines, Ia. ordnance plant.

Wm. C. Dunlap has been made Purchasing Agent for the New Jersey Zinc Company, New York, N. Y., to succeed the late C. Norris Fleming, according to announcement by Whitford J. Lee, General Purchasing Agent. Albert E. Turner has been appointed Assistant Purchasing Agent.

E. P. Jackson is now Director of Purchases for the New York Rubber Corp., Beacon, N. Y. He formerly was connected with the Pemco Corp., Baltimore, Md. Roger Mieschberger, formerly Pur-

(*Continued on page* 260)

"THEY PUT THE *LIFT* IN LIFT TRUCKS"



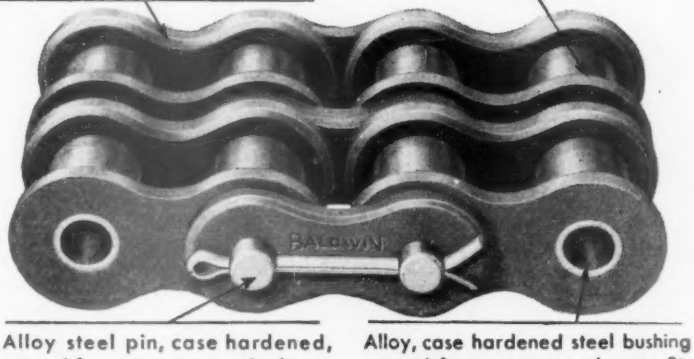
① **BALDWIN-REX ROLLER CHAIN BELTS** have the positive power . . . shock absorbing qualities—high-strength to low-weight ratio to give you ideal design conditions for compact lifting mechanisms.



② **FOR EXAMPLE:** The Baldwin-Rex roller chains driving the elevator keep the loads going up and down smoothly and positively. They do not waste power. They do not jerk and shift or tip a heavy load. They absorb shocks which might be damaging. And they have the strength to handle the heaviest loads.

Steel side plates, heat-treated for strength and toughness, blanked, pierced and broached to insure uniformity of pitch and press fits on pins and bushings.

Alloy steel roller heat-treated for extreme toughness and resistance to wear, then ground to size.



Alloy steel pin, case hardened, ground for accuracy, superior bearing surface. Shorter pitch chains furnished with riveted construction.

Alloy, case hardened steel bushing ground for accuracy and press fits in side bars.

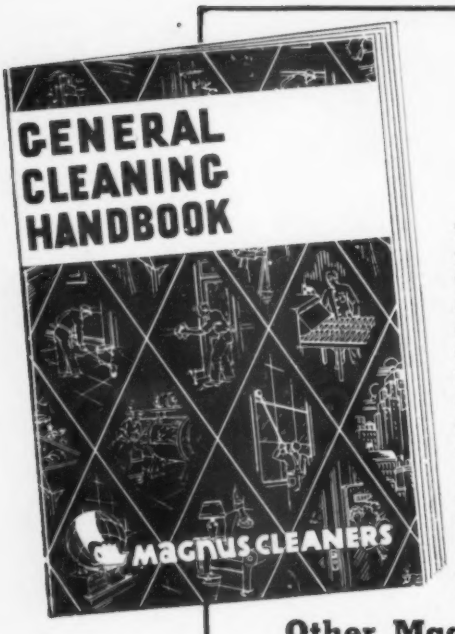
③ **IF YOU** have a problem involving the transmission of power, or timing of operations, investigate Baldwin-Rex roller chain belts. They operate efficiently on both long and short centers. They keep speed ratios constant and accurately time operations to the split second. Easy to install, compact, clean and quiet in operation, Baldwin-Rex roller chain belts are preferred by machine designers.



For catalogs on Baldwin-Rex roller chain belts or competent information on your specific drive, timing or conveying problems, write **BALDWIN-DUCKWORTH** *Division of* **CHAIN BELT COMPANY,** *366 Plainfield Street, Springfield 2, Mass.*

BALDWIN-REX *ROLLER CHAIN BELTS*

Baldwin-Duckworth Division, Springfield 2, Massachusetts • Rex Chain Belt and Transmission Division, Rex Conveyor and Process Equipment Division, Milwaukee 4, Wisconsin



Write Now For as Many Copies as You Can Use!

There are a great many cleaning jobs you face, from cleaning floors and walls to cleaning toilets, washrooms and rest rooms, which deserve a great deal more attention than they usually get. Wrong methods and improper materials not only lead to excessive cleaning costs and poor results, but often cause serious damage to surfaces, as well as reduced service life.

The Magnus General Cleaning Handbook covers every cleaning job faced in buildings and institutions of all kinds. It is full of ideas and shortcuts you will find applicable to your cleaning problems.

Other Magnus Handbooks

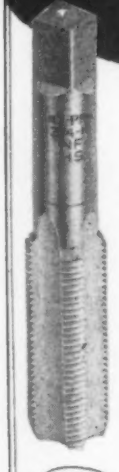
cover the cleaning problems of various industries, including truck and bus fleets, paper mills, dairies, bakeries, food plants, metal products and machinery manufacturers, petroleum production and refining, power plants, railroads and garages. Copies of these cleaning manuals are also available to you in any quantity you may require.

MAGNUS CHEMICAL CO. 93 SOUTH AVENUE, GARWOOD, N. J.

Magnus Special Industrial Cleaners

More Threaded Holes per Tap with

HY-PRO TAPS



Your cost per tapped hole is much less when HY-PRO Ground Thread Taps are used. When tapping at high speeds these high production taps will usually produce at least SIX TIMES AS MANY HOLES AS A CUT THREAD TAP! In addition, they require only about one fifth the sharpening for the same number of holes, and are less easily broken.

PROMPT DELIVERY. 10 days to 2 weeks delivery of most sizes not in stock

Commercial • Precision • Special Ground Thread Taps

Send for Catalog on Company Letterhead

HY-PRO TOOL CO.
New Bedford, Mass., U.S.A.

(*Continued from page* 258)

chasing Agent, has been transferred to the company's Middletown plant.

Frank W. Holden, Purchasing Agent of the Rourke-Eno Paper Co., Hartford, Conn., has been elected vice president of that company.

V. H. McKimmey has been appointed Purchasing Agent for the Rowan Drilling Co., Fort Worth, Texas.

E. A. Payne has resigned as Purchasing Agent of the Pacific Pump Inc., Tulsa, Okla., to go into the sporting goods and hardware business in Tulsa.

W. J. Bass is now Purchasing Agent for the Square D Company, Detroit, Mich., succeeding K. E. Winslow resigned.

Juan M. Velasco is now General Purchasing Agent for the National Railways of Mexico with headquarters at Mexico City, Mexico. Mr. Velasco entered the company's service in 1905 in the stores department. Previous to his present appointment he was chief of the purchasing department.

L. L. Studer has been made chief stores officer in charge of Purchases, stores, scrap and reclamation for the United States Railway Mission in Mexico. His headquarters are in Mexico City.

James T. O'Dea, formerly Purchasing Agent and more recently general manager of the P. & P. U. R. R., Peoria, Ill., is now president of the company.

Robt. C. Swanton, Purchasing Agent, Winchester Repeating Arms Co., New Haven, Conn., and president of the National Association of Purchasing Agents, has been reelected to the directorate of the New Haven Chamber of Commerce.

Clay Spaulding has been named Deputy State Purchasing Agent in charge of War Surpluses, Indianapolis, Ind., according to announcement by State Purchasing Agent O. F. Hesler.

AMONG THE COMPANIES YOU BUY FROM

Operadio Manufacturing Co., Southern California and Arizona territory. H. H. Van Luven of Los Angeles has been made sales representative for the commercial sound division.

Continental Can Company, Inc., Pittsburgh office. The former Wheeling district sales office has been moved to Pittsburgh with headquarters in the Grant Building. P. A. Loofbourrow, district sales manager for packers' and general line cans in this territory, is in charge. Roanoke, Va.: D. V. Wiley has been named manager of sales to succeed E. S. Marshall.

(*Continued on page* 264)



Behind the Scenes

See how the H & D package laboratory operates "behind the scenes." A typical product, never before packaged in corrugated, enters the laboratory. How H & D Package Engineers proceed with the design, development and testing of an engineered corrugated shipping box is photographically recorded, scene by scene. If you're interested in packaging, you'll want to see this detailed backstage presentation of the H & D package laboratory at work.



TAKE A LOOK AT PACKAGING IN ACTION

• Look at packaging from "behind the scenes." Go along with a Package Engineer while he designs an engineered shipping box. To get a better understanding of the science of package engineering, send for your copy of H & D's book, "Behind the Scenes at the H & D Package Laboratory." Write today.

Hinde & Dauch

AUTHORITY ON PACKAGING

THE HINDE & DAUCH PAPER COMPANY, 4523 DECATUR STREET, SANDUSKY, OHIO

Factories in BALTIMORE • BOSTON • BUFFALO • CHICAGO • CLEVELAND • DETROIT • GLOUCESTER, N. J. HOBOKEN • KANSAS CITY • LENOIR, N. C. • MONTREAL • RICHMOND • ST. LOUIS • SANDUSKY, OHIO • TORONTO

Westing

supply any electronic

SURVEY AND

TUNE IN: John Charles Thomas—Sunday, 2:30 P. M., EWT—NBC
Ted Malone—Monday through Friday, 11:45 A. M., EWT—Blue Network

house can tube you need, with this SUPPLY PLAN!

HERE'S WHAT WE DO:

WESTINGHOUSE MAKES A TUBE SURVEY OF YOUR PLANT

A Westinghouse tube representative will inspect your electronic equipment and determine the type, the manufacturer, and the catalogue number of each tube and its estimated life. This analysis will cover all of the tubes you use, regardless of make.

WESTINGHOUSE MAKES A TUBE SURVEY OF OTHER PLANTS IN YOUR AREA

A Westinghouse tube representative will make a tube survey of the other plants in your area which have electronic equipment.

WESTINGHOUSE BASES ITS LOCAL TUBE STOCKS ON THESE SURVEYS

With these surveys your Westinghouse tube distributor has an accurate picture of tube requirements of your entire area. He bases his tube stock on these surveys. This stock will include not only Westinghouse tubes but also the tubes of other makes which your equipment requires.

HERE'S WHAT YOU GET!

A copy of the completed survey of your electronic equipment.

A complete report on the tubes used in your plant.

Prompt delivery on these tubes from the Westinghouse tube warehouse in your area.

If you would like us to make a survey of your plant . . . call your local Westinghouse representative or write Westinghouse Electric Corporation, Lamp Division, Bloomfield, New Jersey.

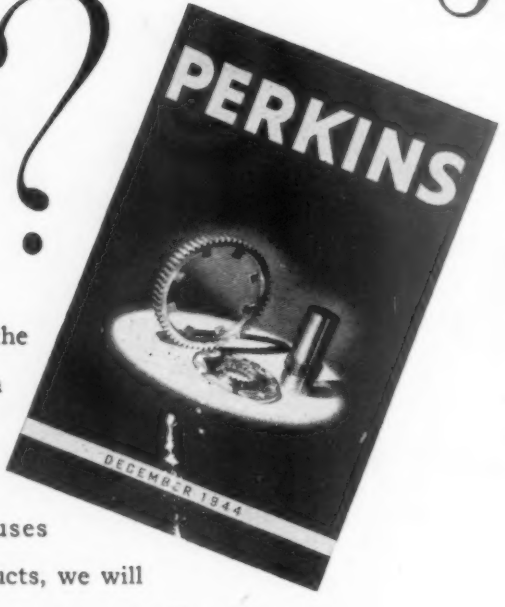
ONE CALL

Electronic Tubes at Work

DOES IT ALL

© 1945, Westinghouse Electric Corporation

are you on our mailing list?



PERKINS is the name of the house organ we publish monthly. If you are a Purchasing Agent or Engineer of a firm which uses custom-cut gears in its products, we will be pleased to place your name on our mailing list.

The editorial content covers a wide range of interests and may be either amusing or instructive; at any rate, it is devoid of "commercials." Sales promotion matter is confined to a list of the company's products on the outside back cover, plus a single advertisement occupying the center spread. The purpose of these advertisements is to convey the idea that we not only know our business thoroughly, but that in general, we are a pretty good outfit to do business with. Please write us on your firm's letterhead if you wish to receive Perkins. Price of subscription: Your Good Will.

PERKINS MAKES:

Helical Gears *Bevel Gears* *Ratchets*
Worm Gears *Spiral Gears* *Spur Gears*
Ground Thread Worms

PERKINS *custom-cut* **GEARS**
PERKINS MACHINE & GEAR COMPANY, SPRINGFIELD 2, MASS.

(*Continued from page* 260)

R. O. H. Hill, Inc., New York, N. Y. J. G. Koelbel has been appointed vice president in charge of sales and assistant general manager of the company.

Foxboro Co., Cleveland area. Harry D. Wagner has been added to the company's staff of engineers, with headquarters at 417 Bulkley Bldg., 1501 Euclid Ave., Cleveland 15, Ohio.

Minnesota Mining & Manufacturing Co., Eastern division. Earl F. Gregg has been



advanced to the position of sales engineer, electrical tapes. In addition to direct account responsibility, he will have supervision of electrical tape salesmen in the Boston, New York, Buffalo, Philadelphia and High Point divisions.

Kennametal, Inc., Latrobe, Pa. A tool engineer has been added to each of three district offices. Alfred Anderson, who formerly worked in the laboratories of Linde Air Products Co., has joined the Philadelphia office. G. A. Bunn, now at the Detroit office, has had twenty years experience in the production departments of various manufacturers of automobiles and accessories. Jack Wright, formerly production foreman at Brown & Sharpe, has been added to the West Hartford office.

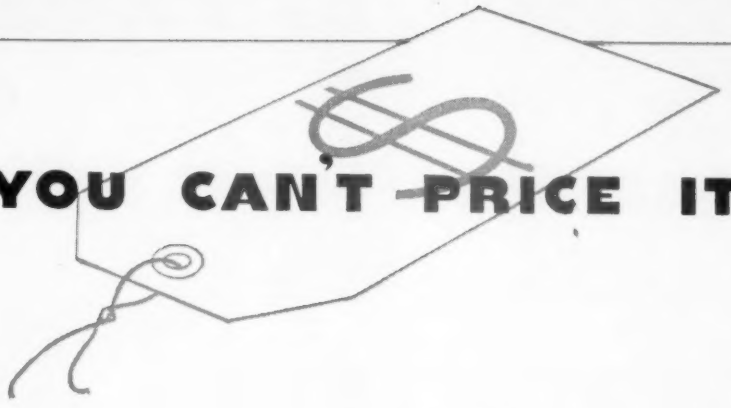
Eastern Machine Screw Corp., New Haven, Conn. Carl W. Bettcher has been elected



president, and will continue to direct sales and advertising.

Ilg Electric Ventilating Co., Chicago, Ill. Marvin Gardner has been named sales engineer in the Dallas district. George A. Innes has been appointed sales engineer under C. Warner Smith, manager of the Philadelphia office. Roy H. Mackay, who formerly acted as associate engineer for the U. S. Bureau of Reclamation, Wash-

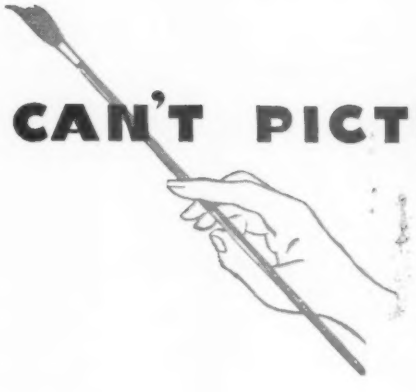
(*Continued on page* 266)



YOU CAN'T PRICE IT!



YOU CAN'T STOCK IT!



YOU CAN'T PICTURE IT!

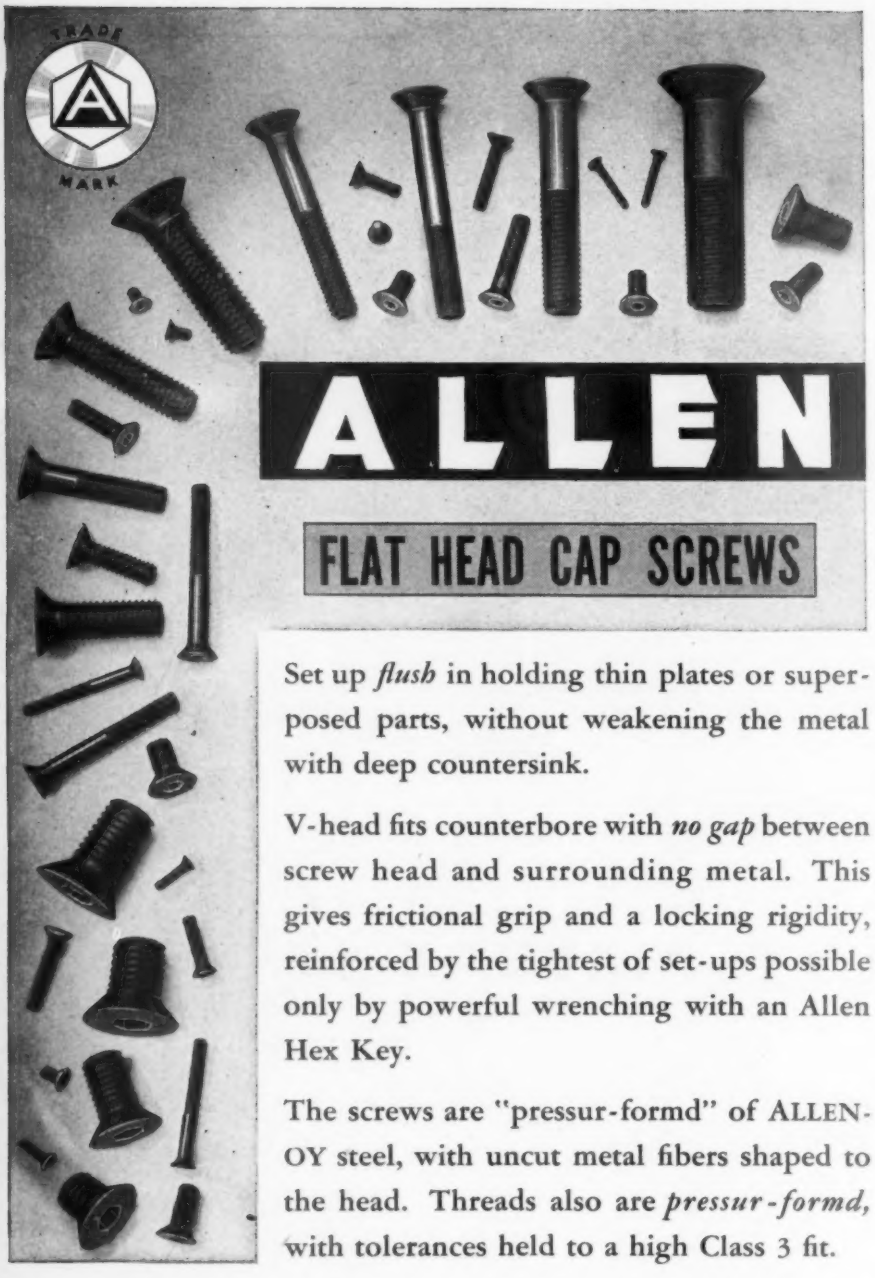
. . . but it's all we have to sell

Service . . . it's a word difficult to picture or express but it's all we have to sell. To us at Levinson Steel it means a pleasant "hello" when you're 'phoning for steel . . . the knack of letting you know we would like to be helpful . . . the faculty of handling your problems in a conscientious manner. Or it may mean hiring a truck at 11:00 p.m., calling the Coast about an urgent shipment at 3:00 a.m., or getting a mill-wright out of bed at 5:00 a.m. It means going to any length at any time to do your job the way you want it done . . . all of this the pleasant, personal, amiable Levinson way!

LEVINSON STEEL

LEVINSON STEEL SALES CO. LSS-2

33 PRIDE STREET • PITTSBURGH, 19, PA.



Set up *flush* in holding thin plates or superposed parts, without weakening the metal with deep countersink.

V-head fits counterbore with *no gap* between screw head and surrounding metal. This gives frictional grip and a locking rigidity, reinforced by the tightest of set-ups possible only by powerful wrenching with an Allen Hex Key.

The screws are "pressur-formd" of ALLEN-OY steel, with uncut metal fibers shaped to the head. Threads also are *pressur-formd,* with tolerances held to a high Class 3 fit.

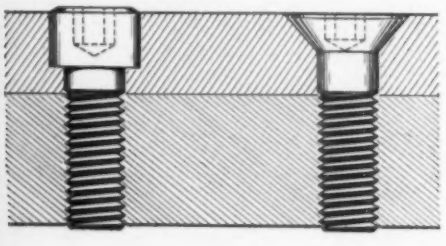


Diagram at left shows how flush surface is achieved with shallow countersink as compared with ordinary socket head cap screw. Note more binding surface under the head than is had with a fillister or cheese-head type. Angle helps lock screw in place by drawing down on a conical surface.

Your local Allen Distributor will supply you with samples to try out these signal advantages of our Flat Head Cap Screws. Also ask for samples of Allen Socket Head Cap Screws, Hollow Set Screws, "Tru-Ground" Shoulder Screws and Dowel Pins. Complete engineering data on request to —

THE ALLEN MANUFACTURING COMPANY
HARTFORD, ★ ALLEN ★ CONNECTICUT, U.S.A.

(*Continued from page* 264)

ington, D. C., has been placed in charge of the new branch office in Knoxville, Tenn. J. W. Pulte will manage another new branch office located in Grand Rapids, Mich. These two new offices bring the total number of branch offices to forty.

Pack-Rite Machines, Milwaukee, Wis. Gladys A. Techtmann has been appointed



director of national sales to succeed E. A. Beyersdorff.

Pittsburgh Plate Glass Co., Zanesville, Ohio. W. B. Sippey has been made sales manager of the Columbia Cement Division. Mr. Sippey began his career with this company over twenty-six years ago. Chester R. Steenberg has been named assistant sales manager, with headquarters in Columbus.

International Derrick & Equipment Co., Dallas, Tex. George W. Walton has assumed the post of manager of drilling machinery sales with headquarters in the Continental Building, Dallas.

Oliver Iron and Steel Corp., Northern California district. A. L. Perdue has been



appointed representative, with headquarters at 260 Fifth Street, San Francisco.

Link-Belt Co., Chicago, Ill. C. H. Schuettenberg has been appointed sales manager of the stoker division with offices at the Caldwell plant, 2410 West 18 Street.

American Chain & Cable Co., Inc., Detroit office. J. H. Rose has been made assistant sales manager of the automotive and aircraft division. Mr. Rose will continue to make his headquarters at the Detroit office in General Motors Building.

Mac Whyte Co., Pacific territory. Fred M. Sime has been named district sales manager for the Pacific Southwest, with headquarters at 749 Bryant Street, San

(*Continued on page* 270)



HERE'S LIGHT WEIGHT AND STABILITY...

FOR many mechanical and structural uses, Formica is the chosen material because of its light weight, strength, and a remarkable ability to remain unchanged under a variety of conditions.

Moisture absorption is low, and that contributes to great dimensional stability under varied conditions of humidity. The coefficient of thermal expansion is also very much lower than that of metals and that also tends to hold the original dimensions. The material possesses a high degree of chemical inertness which prevents corrosion and maintains the surface finish under a wide range of conditions.

In wearing parts the material has a tendency to wear smoothly without accumulating a corrugated surface, and that contributes to long life.

Formica engineers have a wealth of information in detail regarding these qualities which they would be glad to pass on to those interested.

FORMICA

THE FORMICA INSULATION CO., 4666 SPRING GROVE AVE., CINCINNATI 32, O.

"Tomorrow is *another* day"

Because, for almost a century, Powell Engineering has been anticipating the flow control requirements of products and processes still in the laboratory stage, Powell was ready to meet—and has met—every new demand imposed by war. Today we can justifiably say "there's a Powell Valve for every *known* requirement of industry."

But "tomorrow is another day" and it will bring new problems in flow control. Powell, as always, will be ready to solve them.

The Wm. Powell Co.

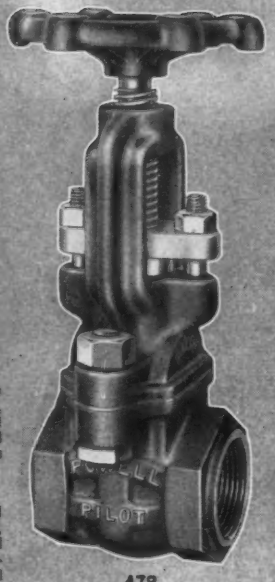
Dependable Valves Since 1846

Cincinnati 22, Ohio



1793

Fig. 1793—125-pound Iron Body Bronze Mounted Gate Valve with flanged ends, outside screw rising stem, bolted flanged yoke, bronze seats, and taper wedge solid disc. Available with taper wedge double disc—Fig. 1444.



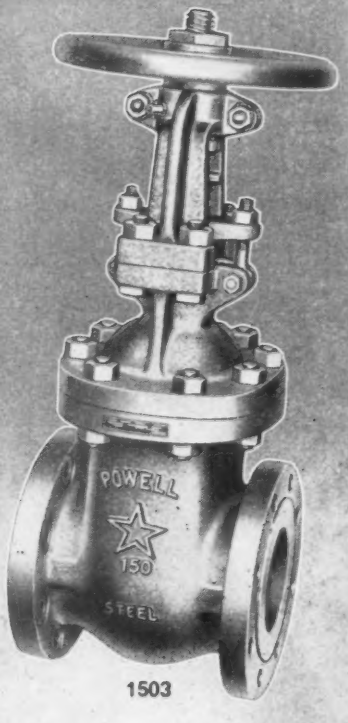
478

Fig. 478—Iron Body Bronze Mounted "Pilot" Gate Valve with screwed ends, outside screw rising stem, bolted yoke and taper wedge solid disc. Sizes ½" to 2", inclusive, for 150 pounds W.S.P.; 2½" and 3", for 125 pounds W.S.P.



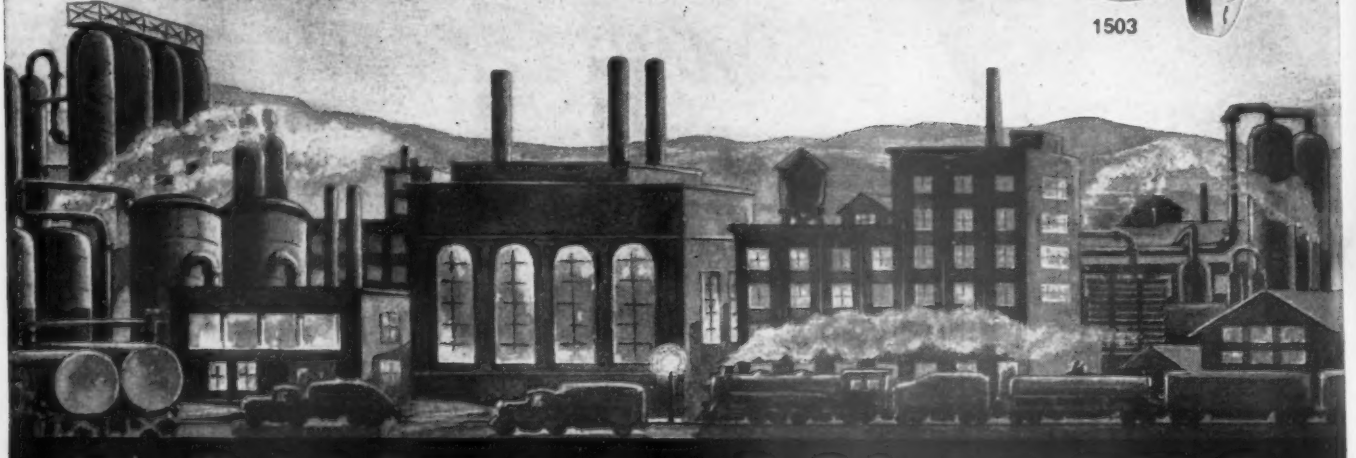
500

Fig. 500—125-pound Bronze Gate Valve, with screwed ends, inside screw rising stem, screwed bonnet and either taper wedge solid or double disc.



1503

Fig. 1503—Class 150-pound Cast Steel Gate Valve with flanged ends, outside screw rising stem, bolted flanged yoke and taper wedge solid disc.

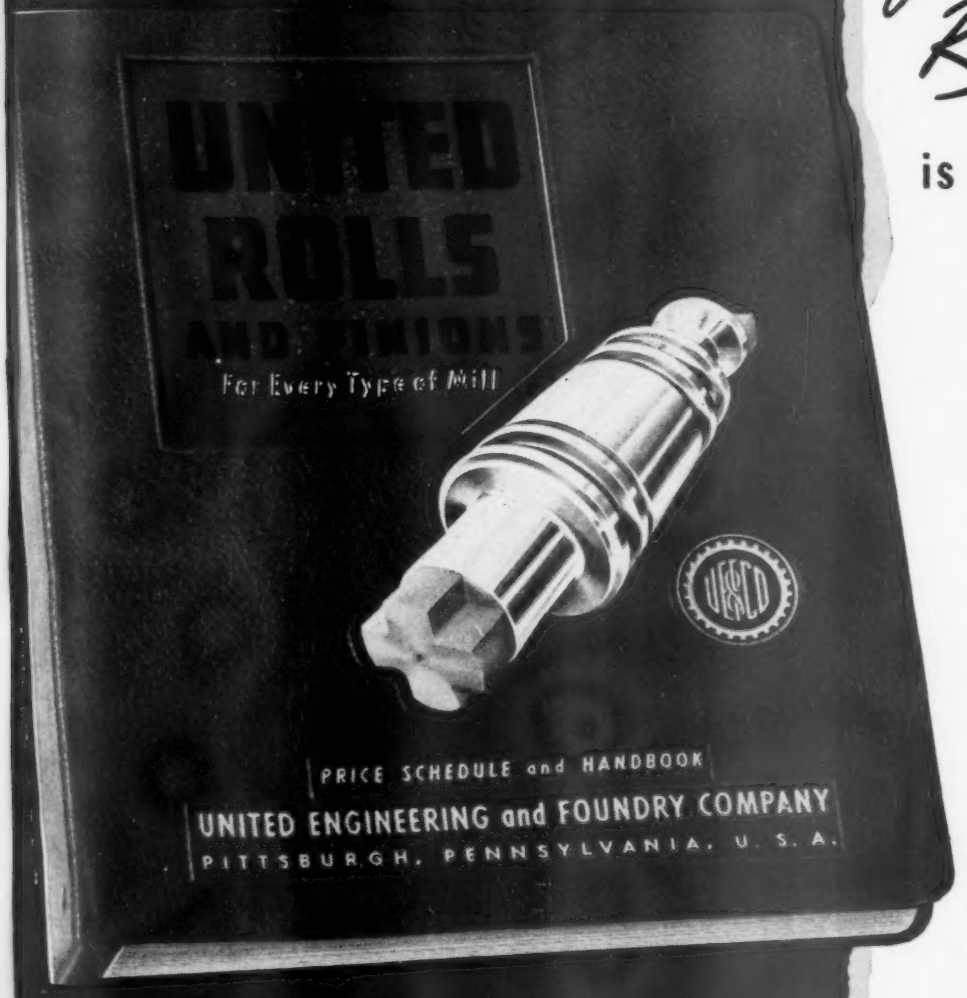


POWELL VALVES

nd Handbook

for the Rolling Industry

is yours for the asking



Just off the press. It's new, authoritative, up-to-the-minute. And it's packed with authentic technical and metallurgical information for those engaged in the rolling of ferrous or non-ferrous metals or other materials. The various types of rolls most successfully used in today's modern rolling operations are fully described.

It lists and illustrates the 15 principal classifications of rolls manufactured by United Engineering and Foundry Company, together with the necessary data, grade designations, and prices to make selection of the right roll for your particular requirement easy and positive. And there is a complete section devoted exclusively to tables and charts packed with information valuable to users of rolls in every industry.

The edition is limited. So better mail your request today!

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REG. U.S. PAT. OFF.

lls and Rolling Mill Equipment



BY PRECOATING cold rolled strip steel at the mill, Thomas does the plating job for you. This method is far more economical than plating of parts after they have been formed. It reduces or entirely saves handling, clerical, maintenance, and production costs. Remember, too, that with precoated ThomaStrip you obtain peelproof, uniform coatings on the inside and outside surfaces of your parts, regardless of how complicated they may be. Write today for helpful information or send samples.

ThomaStrip
COLD ROLLED STRIP STEEL

ELECTRO-COATED ZINC, COPPER, NICKEL AND BRASS . . . HOT DIPPED TIN AND SOLDER . . . LACQUER COATED IN COLORS . . . UNCOATED PRECISION STRIP, CARBON AND ALLOY SPECIALTIES.

THE THOMAS STEEL CO. • WARREN, OHIO
COLD ROLLED STRIP STEEL SPECIALISTS

(*Continued from page* 266)

Francisco, Calif. W. J. Brett has been appointed to a similar post for the Pacific Northwest, with offices at 1603 N. W. 14 Ave., Portland, Oregon.

John A. Roebling's Sons Co., Trenton, N. J., Ernest C. Low, general manager



E. C. Low

of sales, who has been associated with the company since 1910, has been named vice president in charge of sales. J. D. Thompson, works manager, has become vice president in charge of production; and C. M. Jones has been appointed vice president in charge of engineering.

General Electric Co. B. F. Ilsley has been appointed manager of General Electric's Wire and Cable Division, Central Stations Division, which has been divided into two sections, the Cable Section in Schenectady with J. S. Overstreet as sales manager, and the Magnet Wire section in Fort Wayne with J. J. Curtin as sales manager.

Allis-Chalmers appointments: Milwaukee, Wis., C. F. Codrington has been ap-

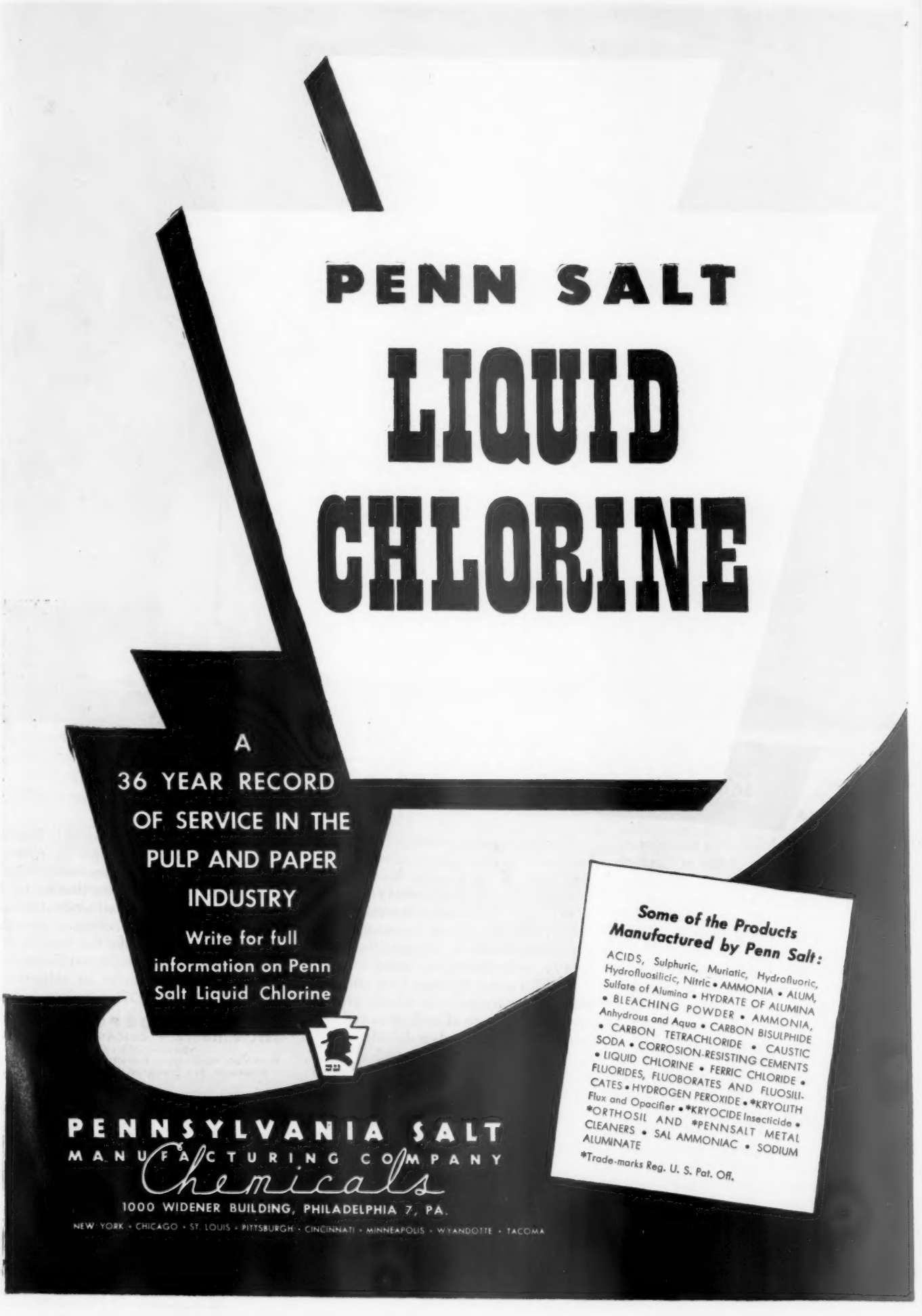


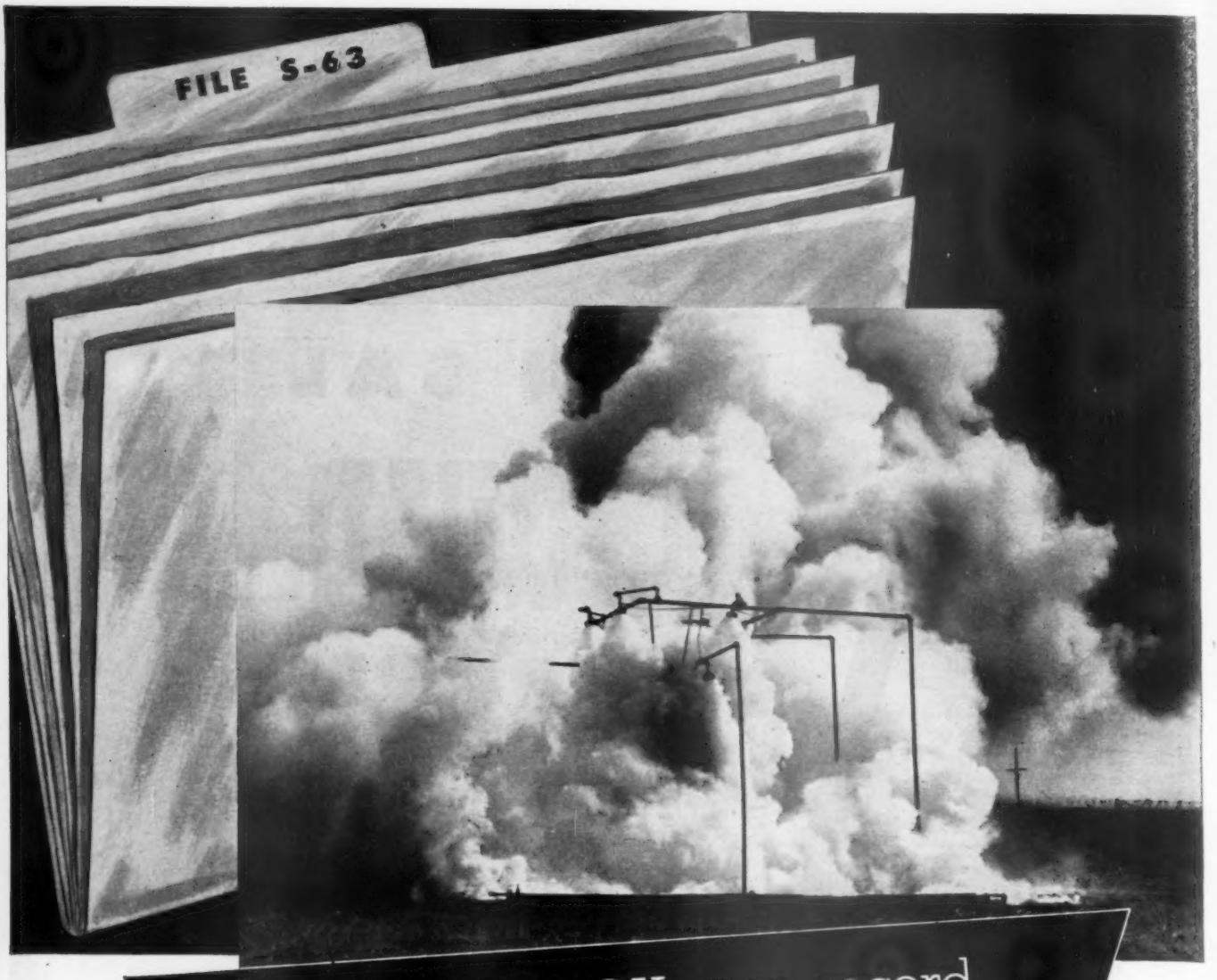
Ernest Franks

pointed assistant to the manager, and A. E. Caudle has been named sales manager of the blower and compressor department. Ernest Franks has been placed in charge of sales of industrial wheel tractors and power units, with offices in Milwaukee. Pittsburgh office: J. C. Schaeffer, field engineer, has been appointed branch office manager at Youngstown, Ohio. L. E. Stacey has been transferred to Wheeling, West Va., as a resident field engineer.

Blaw-Knox Company, Pittsburgh, Pa. Ellis and Lowe has been appointed grating distributor for the Tampa territory, with offices at 226 S. Franklin Street, Tampa,

(*Continued on page* 274)


PENN SALT
LIQUID CHLORINE
A 36 YEAR RECORD OF SERVICE IN THE PULP AND PAPER INDUSTRY
Write for full information on Penn Salt Liquid Chlorine
Some of the Products Manufactured by Penn Salt:
ACIDS, Sulphuric, Muriatic, Hydrofluoric, Hydrofluosilicic, Nitric • AMMONIA • ALUM, Sulfate of Alumina • HYDRATE OF ALUMINA • BLEACHING POWDER • AMMONIA, Anhydrous and Aqua • CARBON BISULPHIDE • CARBON TETRACHLORIDE • CAUSTIC SODA • CORROSION-RESISTING CEMENTS • LIQUID CHLORINE • FERRIC CHLORIDE • FLUORIDES, FLUOBORATES AND FLUOSILICATES • HYDROGEN PEROXIDE • *KRYOLITH Flux and Opacifier • *KRYOCIDE Insecticide • *ORTHOSIL AND *PENNSALT METAL CLEANERS • SAL AMMONIAC • SODIUM ALUMINATE
*Trade-marks Reg. U. S. Pat. Off.
PENNSYLVANIA SALT MANUFACTURING COMPANY
Chemicals
1000 WIDENER BUILDING, PHILADELPHIA 7, PA.
NEW YORK • CHICAGO • ST. LOUIS • PITTSBURGH • CINCINNATI • MINNEAPOLIS • WYANDOTTE • TACOMA



from the CARDOX case record . . .

Out of actual on-the-job fire experience comes evidence of the ability of Cardox Fire Extinguishing Systems to stop even *big* fires *fast*. File No. S-63, taken from an investigator's report on Cardox extinguishment of a tough transformer fire is a typical example:

"The fire occurred in the outdoor transformer area. It was caused by a short in the 2500-volt bus section and quickly ignited a protective screen above the busses. This protective screen consisted of burlap, rubber sheeting and plywood.

"The Cardox System was actuated automatically and worked perfectly . . . in less than a quarter of a minute (after mass discharge of Cardox CO_2 began) the fire was extinguished. No serious damage was done and operations were resumed after a very small delay. The swift and efficient operation of the Cardox System prevented at least $150,000 damage."

The danger spots in your plant may not be similar to the one described in FILE S-63. But, if for example they involve flammable liquids or electrical equipment of any kind, Cardox offers maximum protection with fast-acting, non-contaminating carbon dioxide . . . in *pounds* for small fires . . . and *tons* for large ones!

For all Cardox Systems have one outstanding characteristic which greatly increases the scope of usefulness and performance value of carbon dioxide in protecting *large* and *small* hazards!

This characteristic is the distinctive Cardox method of control and engineered application of liquid carbon dioxide, stored at 0° F. and 300 p.s.i. in a single storage unit containing from ¼ to 125 tons of fire-destroying Cardox CO_2 . . . enough to handle large fires in single or multiple hazards and leave an ample reserve for new emergencies!

If you have fire problems that are hard to handle, low pressure carbon dioxide can frequently provide the effective answer. A study of your specific fire hazards by Cardox Research Division and Engineering Staff puts you under no obligation. Write for Bulletin **2575.**

CARDOX CORPORATION
BELL BUILDING • CHICAGO 1, ILLINOIS
District Offices in
New York, Washington, Detroit, Cleveland, Atlanta, Pittsburgh, San Francisco, Los Angeles, Seattle

CARDOX
CO_2 FIRE EXTINGUISHING SYSTEMS



Cardox CO_2 is supplied instantly in pounds or tons from a single Storage Unit containing 500 pounds to 125 tons at controlled low temperature of 0°F. and 300 p.s.i.

A CHOICE THAT CAN BE IMPORTANT



MIDWEST "STANDARD" BUTT-WELDING ELBOW

MIDWEST "LONG TANGENT" BUTT-WELDING ELBOW

. . . . and ONLY MIDWEST offers THIS CHOICE

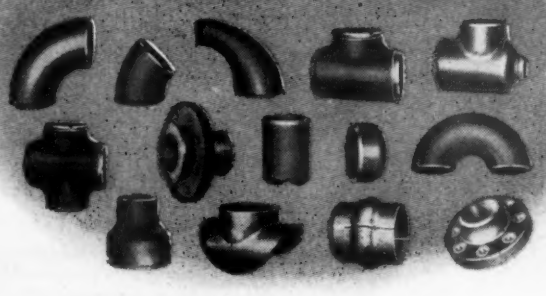
Before you select welding elbows to use on any given piping job, it will be worth your while to consider the relative values of the two elbows shown. On some jobs the correct selection can mean a real saving of time and money. Only Midwest offers you the choice of either type elbow . . . and there is no difference in price.

The "American Standard" elbow has a center-to-end dimension equal to one and one-half times the nominal pipe size. The Midwest "Long Tangent" elbow has a center-to-end dimension of one and three-quarters times the nominal pipe size; it has tangents (straight ends) equal to one-fourth of the nominal pipe size.

These long tangents make it possible for pipe and fitting to be lined up more quickly and accurately. Less pipe is required, a short nipple and an extra circumferential weld are frequently eliminated, and slip-on welding flanges are more easily used.

Both elbows have all advantages of the unique Midwest manufacturing process: final working of the metal in compression (which means exceptional dimensional accuracy and uniformity), stress relieving, exact included angle, true circular section and uniform wall thickness.

MIDWEST WELDING FITTINGS IMPROVE PIPING DESIGN AND REDUCE COSTS



MIDWEST

PIPING & SUPPLY COMPANY, INC.

Main Office: 1450 South Second St., St. Louis 4, Mo.

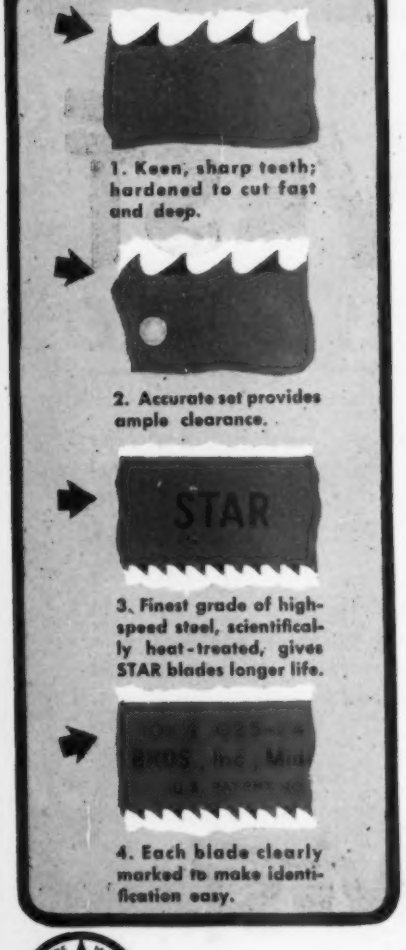
Sales Offices: New York—(Eastern Division) 30 Church Street
Chicago—645 Marquette Bldg. • Los Angeles—520 Anderson Street
Houston—229 Shell Bldg. • Tulsa—533 Mayo Bldg. • South Boston—
426 First St. • Atlanta—Red Rock Bldg. • Distributors in Many Cities

To: Hack saw users
A WORD
OF ADVICE

Buy STAR Blades
FOR faster cutting
FOR cleaner surface
AND they last longer
HERE'S WHY



FREE — STAR Metal Cutting handbook gives valuable instructions on selection, use, and care of hack saw blades.



1. Keen, sharp teeth; hardened to cut fast and deep.

2. Accurate set provides ample clearance.

3. Finest grade of high-speed steel, scientifically heat-treated, gives STAR blades longer life.

4. Each blade clearly marked to make identification easy.

TRADE MARK
CLEMSON
CLEMSON BROS., Inc. Middletown, N.Y.
Makers of hand and power hack saw blades, frames, metal cutting band saw blades and the Clemson D-77 blade machine
7574

(*Continued from page 270*)

Fla. The Acme Wire & Iron Works, 1343 W. Laurel Street, San Antonio, Tex., has been named road products and buckets distributor in the San Antonio district.

Westinghouse Electric Supply Co., appointments: Seattle office. H. E. Bailey has



H. E. Bailey
Utilities Manager, North Pacific District

been named district utilities manager for the North Pacific district. Mr. Bailey will have complete responsibility for the development of all public and private utility business. A. L. Wiegenstein has been appointed apparatus and supplies manager for this same district, with offices in Seattle. Pittsburgh district. G. H. Lineberry has been made apparatus and supply manager. Texas: C M. Reynolds has been appointed manager of the Corpus Christi branch office. J. L. Clay has been named manager of the San Antonio branch office.

Ferry Cap & Set Screw Co., Cleveland. Ohio. Emery B. Hatch, manufacturers' agent, 338 West Emerson Street, Melrose, Mass., has been appointed representative for the New England territory. Edward C. Swan Co., manufacturers' agent, 232 Dahlia Street, Denver, Col., has been named representative for the states of Colorado, Idaho, Montana, New Mexico, Utah, and Wyoming.

Heppenstall Company, Chicago office. James C. Patton, Jr., formerly sales en-



gineer in Detroit, has been placed in charge of the Chicago office at 208 S. LaSalle Street.

Towmotor Corp., Detroit area. Frank Colker and Thomas F. Maloney have been named district sales representatives with offices at 604 Fisher Building, Detroit, Mich.



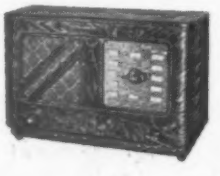
RELIEVES TELEPHONE FACILITIES,
..provides direct communication
EFFICIENTLY AND ECONOMICALLY!

Hundreds of case histories prove that substantial economies effected in telephone rentals, toll charges and service improvements—more than justify the low cost of BOGEN Communo-Phone installations. Reduced line tie-up, lighter loads on switchboards, fewer extensions required, elimination of busy signals and the rapid location of parties are all direct advantages of BOGEN equipment.

In addition, the increased efficiency and closer cooperation of personnel permits precise control of records, stocks, orders, etc. Whatever your requirements, there is a BOGEN Communo-Phone to serve your needs . . . with assured self-amortization of its low first cost!

Address inquiries to Dept. H

TYPE A COMMUNO-PHONE



Inter-communication system comprises Master Unit and up to 18 remote stations. Two way talk and call. Volume control. Remotes can reply at distance of 20 to 30 feet from their unit. No need to interrupt routine or work. Other models provide group and all call features.

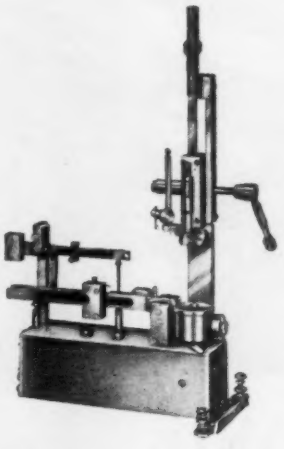
THE STANDARD OF PERFORMANCE
db
Bogen Sound Systems
David Bogen CO. INC.
663 BROADWAY, NEW YORK 12, N.Y.
BOGEN SOUND SYSTEMS - AMPLIFIERS
COMMUNO-PHONES - ELECTRONIC EQUIPMENT



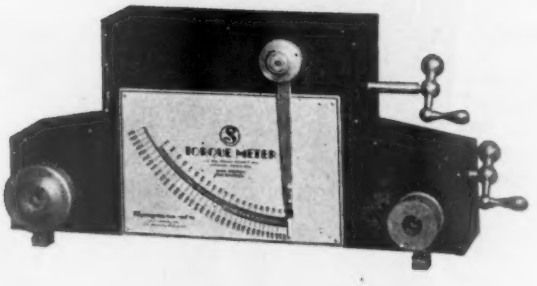
THE NOW FAMOUS SKYWAY "T" torque wrench — tested and used by the Army Air Forces. An absolute torque limiting action incorporating a ratcheting shaft for production speed use. Range in two models, 0 - 35 Inch pounds and 25 - 90 Inch pounds.



THE TORQUE-TITE, featuring torque calibrations in INCH OUNCES for use on small screw, nut and bolt fasteners. Again, torque limiting to insure positive tightening. Range: 0 - 10 Inch pounds.



SPRING TESTER. For production as well as laboratory tests. Fast and accurate indicating minimum and maximum spring values with one setting. Flash of green or red light indicators give an instant signal of these values. Sensitive and accurate within less than 250 milligrams.



THE STANDARD TORQUE METER approved by our Army Air Forces and the Navy for use in accurately checking, or calibrating any type torque wrench. Models provided for any desired range of calibrations.

AVAILABLE

Complete engineering data and catalogs. Discover production saving in time and money by tooling with Skyway.
Write: Dept. PU7.

PRECISION TOOL COMPANY
3217 Casitas Ave., Los Angeles 26, Calif.

REPRESENTATIVES: SEATTLE • CHICAGO • DETROIT • NEW YORK • BALTIMORE • PHILADELPHIA • INDIANAPOLIS

A MILLION MILES

GENERAL CABLE CORPORATION'S ST. LOUIS PLANT CELEBRATES RECORD WIRE PRODUCTION ACHIEVEMENT



The MILLIONTH Mile of Field Wire

More than twenty months of inspired war effort on the part of the Men and Women Employees of the St. Louis Plant of General Cable Corporation were crowned today with gratifying success when the millionth mile of critical field communication wire, single conductor, rolled off the production line ready for shipment to our armed forces overseas.

This notable General Cable achievement, one of the most significant accomplishments in the production of a vital war material to be achieved in the St. Louis area and unequalled in performance in any communication wire plant in the world, marks an epochal milepost in the production of field wire which began in the local plant in October, 1943.

More than four thousand employees working on an average of fifty-two hours per week in three shifts, seven days, are engaged in meeting the urgent requirements for field wire of the United States and its allies. Current production is running in excess of four thousand miles per day or, putting it another way, approximately five times around the globe once a month.

In commenting on the production feat of the local organization, Mr. Dwight R. G. Palmer, President of General Cable Corporation stated, 'Though the performance of our St. Louis Plant was accomplished in the ordinary line of duty, Management nevertheless is particularly gratified that its personnel, comprising a races, creeds and colors, harmoniously evidenced their patriotic sincerity by establishing this outstanding record. We salute the Men and Women of our St. Louis Plant this production achievement'.

OF FIELD WIRE...

Just one example of General Cable's Service to the Nation and its Allies

This output of *one million miles of single conductor communication wire* for the armed services represents the *all-out* effort at only one plant producing enough wire to encircle the globe five times each month.

All ten General Cable plants have been working three shifts, seven days per week, on this and other essential military items.

Come final Victory, General Cable will as energetically attempt to do its part in winning the peace.

GENERAL CABLE CORPORATION

Manufacturers of Bare and Insulated Wires and Cables for Every Electrical Purpose



DESTINED to help keep American Airmen aloft and fighting. . . the bronze parts you see above must pass the height of painstaking inspection. They must be precise . . . flawless . . . strong!

These and thousands of other parts, large and small, are proving the wisdom of specifying "Shenango-Penn", where tubular parts are cast centrifugally and are precisely finished on modern machine tools.

Shenango-Penn's centrifugal process gives castings a head start—greater density, more uniform grain structure, higher tensile strength, less porosity, no blowholes. No wonder they pass inspection with a very minimum of rejection and are better able to cope with shock, stress, wear and every kind of punishment.

Bulletin 143 will give you complete data including alloy specifications, physical and chemical properties, and reasons why Shenango-Penn castings conserve metal and machining time. Write to Shenango-Penn Mold Company, 2455 West Third Street, Dover, Ohio.



Data Bulletin 143 is yours free for the asking.

ARMY NAVY SHENANGO -PENN

ALL BRONZES • MONEL METAL • ALLOY IRONS

INDUSTRIAL DEVELOPMENTS

Aeroil Products Company is the new name of the company formerly known as Aeroil Burner Company of West New York, New Jersey.

Fostoria Screw Co., Fostoria, Ohio, subsidiary of Bowser, Inc. Col. Frank H. Higgins, recently returned to inactive duty from the Army where he was Chief of the Heavy Artillery Ammunition Branch of the Office of Chief of Ordnance in Washington, has been named president.

Frank M. Aldridge is now General Sales Manager of **Ohio Tool Co.**, N.B.C.



Building, Cleveland, Ohio. He was previously associated with the War Production Board as Deputy Regional Director of Ohio, West Va., Kentucky and Western Pennsylvania.

Chase Bag Co., New York. Announcement is made of the signing of contract for a new paper bag manufacturing plant at Crossett, Ark., where a complete line of multiwall paper shipping sacks of pasted or sewed bottom, valve or open mouth construction, as well as other types of commercial paper bags will be made.

Snap-on Tools Corp., Kenosha, Wis., recently celebrated its 25th anniversary. Employees of the main plant joined with the officers at a banquet in Milwaukee, a highlight of the program being the presentation of an oil painting of Founder and president, Joseph Johnson, a gift of the workers, to the Board of Directors.

M. Herbert Eisenhart, president and general manager of the **Bausch and Lomb Optical Co.**, has been elected chairman of the Board of Trustees of the University of Rochester, to succeed Edward G. Miner, resigned.

The Callite Tungsten Corp., Union City, N. J., announces that their product, Callite Tungsten welding electrodes will be identified by the trade-mark "Puretung." The rods are 99.9% pure tungsten.

Gothard Manufacturing Co., Springfield, Ill., makers of pilot light assemblies for electronic and electrical equipment and appliances, is creating a new, modern daylight plant.

(*Continued on page* 280)

SYLVANIA NEWS
INDUSTRIAL EDITION
JULY *Published by* SYLVANIA ELECTRIC PRODUCTS INC., Salem, Mass. 1945

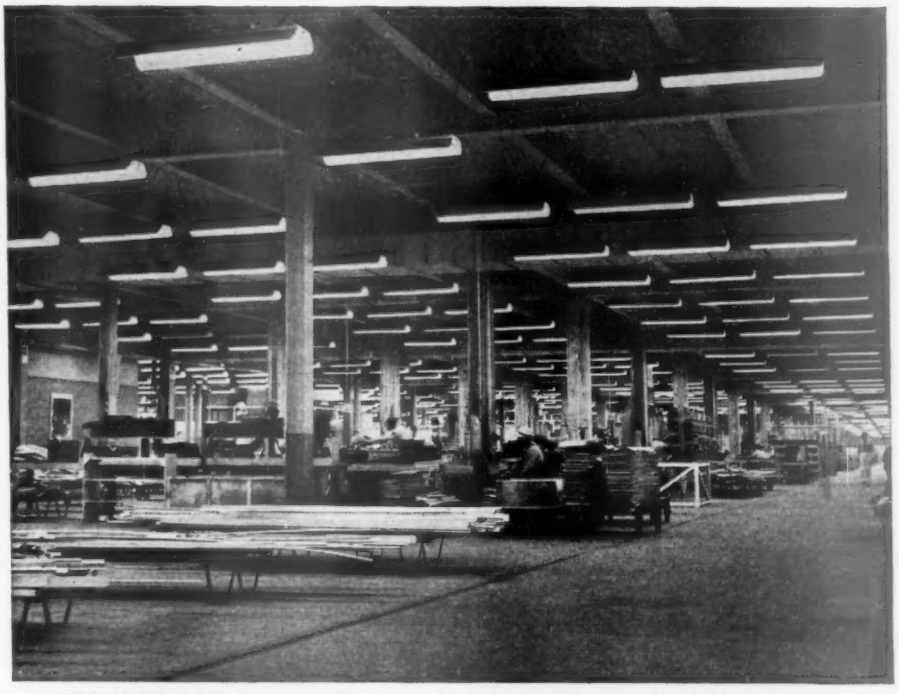
PLANE PLANT FLUORESCENT ILLUMINATED

Consolidated Vultee Sylvania Equipped

Boosting production, Sylvania fluorescent lighting in the aircraft parts plant of Consolidated Vultee, Fort Worth Division, is one of the factors contributing to the company's outstanding war record.

This vital work is carried out under ideal lighting conditions. From manufacturing areas and storage rooms to drafting rooms and offices, Sylvania Fluorescent Fixtures provide a high level of light, free from glare, that makes every job easier. One of the most important results of this lighting is the reduction in eyestrain and fatigue among employees engaged in skilled machine work or spending long hours over drawing boards.

Wherever the worker's comfort and ability to see are best, production will be greatest. Wherever Sylvania Fluorescent Lamps provide the light for industry, management has reported increased efficiency of operation.



FLUORESCENT LAMPS and fixtures by Sylvania Electric light the low bay areas of the Parts Plant at Consolidated Vultee Aircraft Corporation, Fort Worth, Texas.



COOL, HIGH-LEVEL lighting in the Experimental Building is provided by Sylvania equipment mounted 65′ from the floor. Doubling the units next to the walls compensates for wall area losses and evenly distributes the light from wall to wall—up to working levels 40′ above the floor.



MAINTENANCE MEN keep a close check on the lighting in the Experimental Building. The man above is installing a new lamp from the overhead maintenance cab provided specially for servicing the expansive lighting system. This cab is suspended from rails and moves over the entire system.

SYLVANIA ELECTRIC

MAKERS OF FLUORESCENT LAMPS, FIXTURES, ACCESSORIES; ELECTRIC LIGHT BULBS; RADIO TUBES; CATHODE RAY TUBES; ELECTRONIC DEVICES



(*Continued from page 278*)

International Nickel Co., Inc., New York., announces the formation of the following newly created sections of the Development and Research Division: Industrial Chemicals Sectioon to be headed by O. B. J. Fraser; Corrosion Engineering Section, with F. L. LaQue in charge, and Iron and Non-Ferrous Castings Section, headed by Donald J. Reese.

Republic Mining & Mfg. Co., New York. Name has been changed to Alcoa Mining Co., in order to identify the company more closely with Aluminum Company of America, of which it is a subsidiary.

Automotive Maintenance Machinery Co., No. Chicago, Ill. Announcement is made thcat the Production Honing Machine Division of AMMCO has been purchased by the C. Allen Fulmer Co., Cincinnati, Ohio., which takes over manufacture and sale and will service the machines that have been sold by AMMCO.

Poulson & Nardon, Inc., Los Angeles, machine, stamping and die plant, has been purchased by Solomon Eisenrod, president of the Lincoln Machine Co., Inc., of Pawtucket, R. I. C. J. Nardon will remain as general manager.

James Fennerty Donahue, vice president of the **Lamson & Sessions Co.,** Cleveland, Ohio, was honor guest at a testimonial luncheon and dinner reception arranged by a committee representing the American Institute of Bolt, Nut & Rivet Manufacturers, marking his 50th year in the industry. He was presented with a watch and a plaque commemorating the anniversary.



The Dayton-Dowd Company of Quincy, Ill., one of the oldest independent pump companies in the country, has been purchased by Food Machinery Corporation. Plans of Food Machinery call for continuation of the present plant in Quincy as Peerless Pump Division, Inc., a branch of the Peerless Pump Division with headquarters in Los Angeles. It will be under the direction of Clarence M. Frazier, vice president. Henry J. McKenzie has been named manager.



Clarence M. Frazier **Henry J. McKenzie**

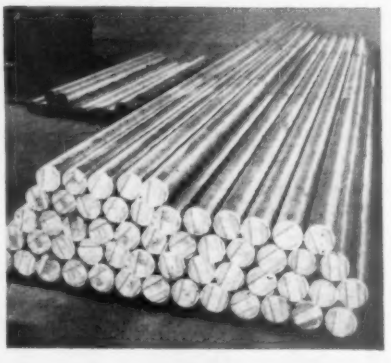
Clark Manufacturing Co., Cleveland, Ohio, announces that its products are now being marketed as "Clark Fluid Controls" instead of "Strong Steam Specialties" as heretofore.

Witco Chemical Company, New York, N. Y., is observing its 25th anniversary. The company, originally known as Wishnick-Tumpeer, Inc., was founded in May 1920.

The Baldwin Locomotive Works announces the formation of a Canadian subsidiary to market such Baldwin products as turbines, water wheels, hydraulic presses, power tools and diesel engines from headquarters to be opened in Toronto. W. N. Brownlie will be managing director with headquarters in Toronto.

Vanadium Corporation of America, 420 Lexington Ave., New York., is resuming publication of its house organ, The Vancoram Review, which will be issued quarterly. The publication is dedicated as a "practical, impartial aid to the continued advancement and progress of alloys, metals, and allied chemical compounds."

(*Continued on page 284*)



Welded Stainless Tubing

4" to 14¾" O.D.

Uniformity in roundness and in quality of welding characterizes Pittsburgh Piping Welded Stainless Tubing. Available in most stainless alloys, in sizes 4" O.D. to 14¾" O.D., and in wall thicknesses ranging from 7/64" to ½". Write for data sheet.

PITTSBURGH PIPING & EQUIPMENT CO. 10 FORTY-THIRD ST., PITTSBURGH, PA.



CUSTOM-BUILT *for* SAVINGS

You can bank on set-up paper boxes to ensure utmost economy in packing and shipping . . . for these handsome, sturdy containers — custom-built to protect your products while enhancing their display value—make possible speedier assembly-line packaging. And because they're remarkably light in weight, they pare shipping tariffs. You'll find it profitable to have a set-up paper box custom-built to your special requirements.

BACK THE MIGHTY SEVENTH WAR LOAN. BUY — and HOLD — YOUR INVESTMENT IN THE FUTURE. *7th.*



NATIONAL PAPER BOX MANUFACTURERS *Association*

LIBERTY TRUST BUILDING • PHILADELPHIA 7, PENNSYLVANIA

FOR INFORMATION OR SERVICE • CONSULT THE NEAREST SET-UP BOX MANUFACTURER



3 Standard Fastenings for Production Efficiency



1 **Phillips Recessed Head Screws**—The modern, effective, time-saving fastening device proven in tens of thousands of assembly lines. Other standard head styles are also available.



2 **Self-Tapping Machine Screws**—Eliminate separate tapping operations for fastenings to castings, heavy gauge sheet metal, and plastics. Also available with Phillips Recessed Head.



3 **Washer-Screw Assemblies**—When use of lock washers is indicated, the time-saving of pre-assemblies is obvious. Also available in standard slotted head styles.

"Cold-forging"—proof #33
. . . more each month

The degree of perfection you will obtain on that vital fast assembly job may very well depend on the fastenings chosen for your product. That's why it is important to play safe by making your precise choice early in the design stage. Remember—no assembled product can be better than its fastenings.

Whether your need be a featured standard fastening or a part especially designed to meet your specific requirements—Scovill can help you. Our broad experience in fastenings and our demonstrated ability in special design make Scovill your logical choice.

The special purpose item featured above (in intermediate and finished stages) is one of many examples of our ingenuity in special design and cold-forging. Our special processing of this part, too, meant substantial savings in money—materials—motions.

Call our Fastenings Expert to help you choose—profit by Scovill skill in design and cold-forging. Call *today.*

SCOVILL MANUFACTURING COMPANY
WATERVILLE SCREW PRODUCTS DIVISION
WATERVILLE 48, CONN. TEL. WATERBURY 3-3151

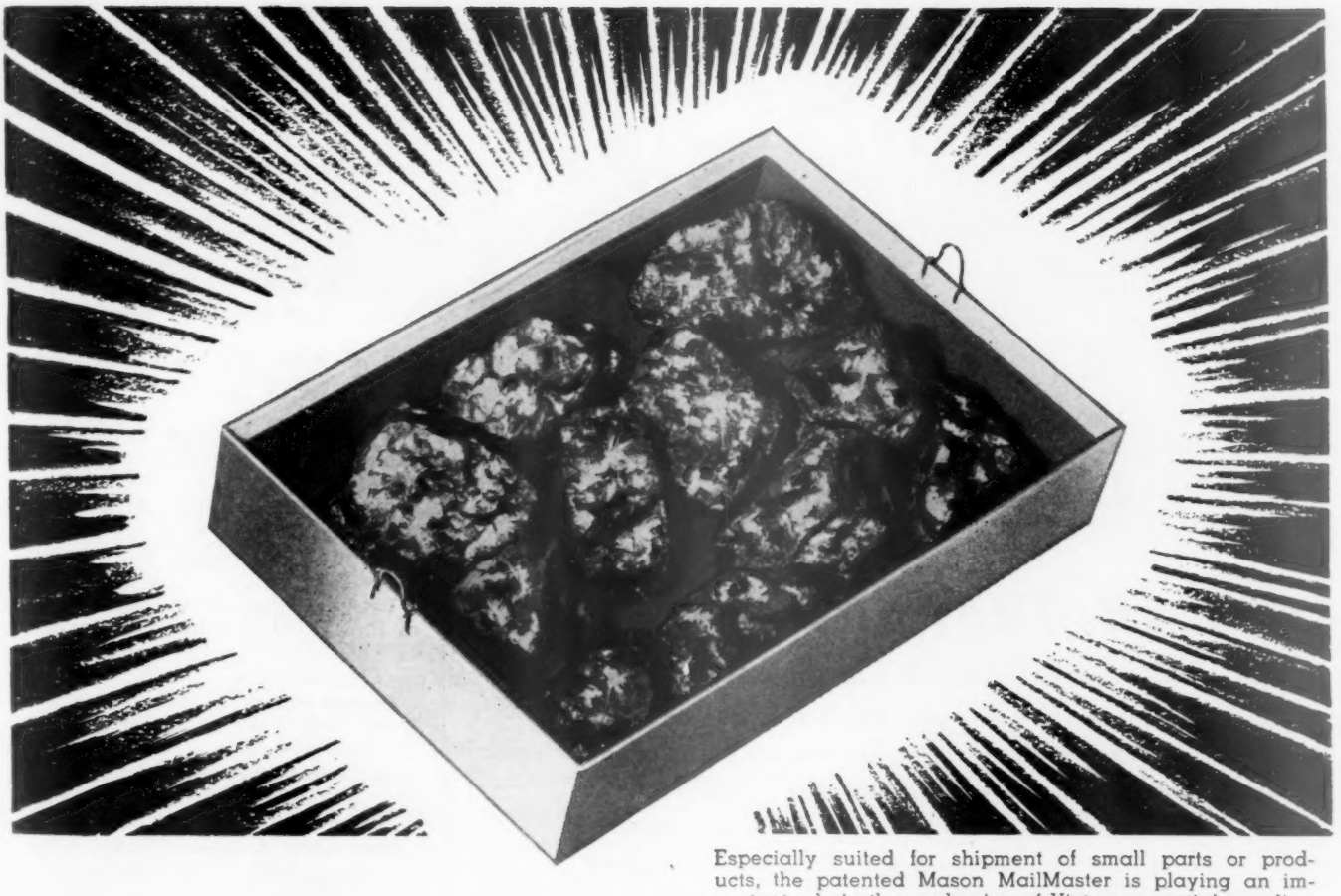
NEW YORK, Chrysler Building • DETROIT, 714 Fisher Building • CHICAGO, 135 South LaSalle Street • PHILADELPHIA, 18 W. Chelten Avenue Building
PITTSBURGH, 2882 W. Liberty Ave. • SYRACUSE, Syracuse-Kemper Insurance Bldg. • LOS ANGELES, 2627 S. Soto St. • SAN FRANCISCO, 434 Brannan St.



As all-purpose shipping containers, Mason MailMasters really "strike it rich!" For their uses are legion — the packaging of drugs, spectacles, watches, pipes, small replacement parts, etc. . . . yes, even western lode that is shipped East by a prominent geologist for analysis at a well-known university.

If, after Victory, you need a safe, convenient shipping container particularly suited for assembly line packaging . . . if, you want built-in strength and ruggedness that ensures proper delivery of your postwar product, you'll want to include Mason MailMasters in your peacetime plans.

BUILT TO CARRY THE LODE!

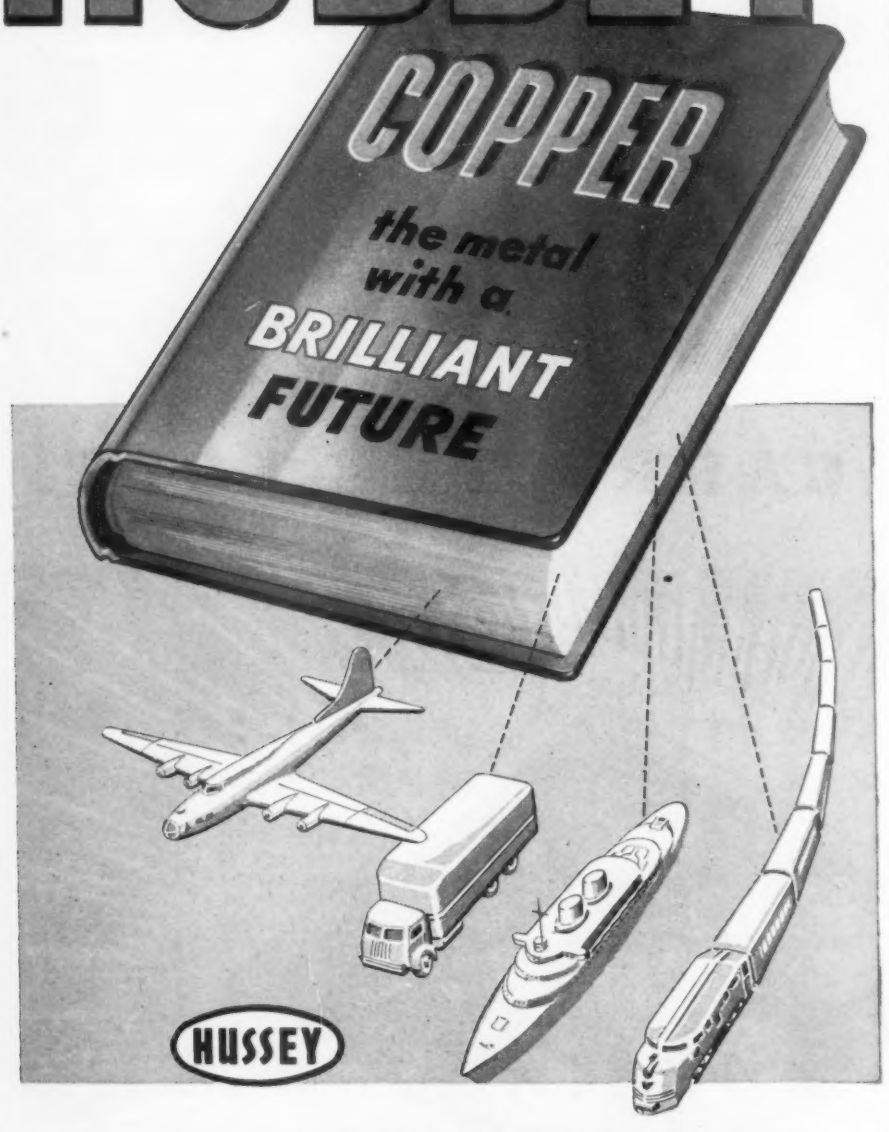


Especially suited for shipment of small parts or products, the patented Mason MailMaster is playing an important role in the packaging of Victory-essential supplies.

The MASON BOX COMPANY

ATTLEBORO FALLS, MASS.—175 5TH. AVE., NEW YORK

HUSSEY



. . . IN TRANSPORTATION

In the post war era, wherever man travels, or world trade brings prosperity—there you will find Copper doing the jobs that no other metal can equal. There too, will be proven again, the superiority and outstanding dependability of Hussey Copper and Copper products. Hussey engineers armed with new developments in Copper will welcome the opportunity of cooperating with you now.

C. G. HUSSEY & COMPANY
(Division of Copper Range Co.)
ROLLING MILL and GENERAL OFFICES: PITTSBURGH, PA.
Warehouse Stocks in New York, Philadelphia, Cleveland, Cincinnati, St. Louis & Chicago
Contact your nearest warehouse.

(*Continued from page* 280)

Fafnir Bearing Co., New Britain, Conn. Fayette (Cy) Leister has been advanced to the position of engineering manager. In addition to heading up all phases of product design and development his responsibilities will include service engineering.

ARMY — NAVY — MARINE MERIT AWARDS



The Army-Navy "E" award was presented to the United States Cartridge Co., St. Louis, Mo. by Brig. Gen. James Kirk, chief of Small Arms Ammunition for the Armed Forces, who is shown with J. M. Olin, left, president of company, and S. T. Olin, first vice-president.

Westinghouse Lamp Division, Bloomfield, Belleville, and Trenton, N. J., and Fairmont, W. Va. Army-Navy "E" burgee with white star.

Firestone Tire and Rubber Co., Bennettsville plant, S. C. Army-Navy "E" award.

Aro Equipment Corp., Bryan, Ohio, Fourth Army-Navy "E" award.

Dayton Rubber Mfg. Co., Waynesville, N. C. Army-Navy "E" flag.

Broderick & Bascom Rope Co., St. Louis, Mo. Fifth star for "E" burgee.

Gould Industrial Division of the National Battery Co., Depew, N. Y. A third star added to its Army-Navy "E" pennant.

Taft-Peirce Manufacturing Co., Woonsocket, R. I. Fifth white star for Army-Navy "E" flag.

Shellmar Products Co., Mt. Vernon, Ohio. Third Army-Navy production award.

United States Cartridge Co., St. Louis, Mo. Army-Navy "E" award.

Plant Rubber & Asbestos Works, Emeryville plant, Calif. Third star for Army-Navy "E" flag.

Sprague Electric Compan, North Adams, Mass. Fourth star for "E" flag.

Wyckoff Steel Company, Ambridge, Pa. and Chicago, Ill. plants. Fifth renewal of the Army-Navy "E" production award.

Macwhyte Company, Kenosha, Wis. Third star for Army-Navy "E" flag.

FOR GREATER PRODUCTION . . .

BWH Conveyor Belts



LIMESTONE IS A NO. 1 WAR PRODUCT

It is used in making pig iron, calcium carbide, acetylene gas and synthetic rubber.

Here is a Bull Dog conveyor belt 454 ft. long and 48 inches wide on a boom on the Steamer "Conneaut" owned by the Wyandotte Transportation Company. It has been in service 6 years, during which time it has handled over five million tons of stone and coal.

A BWH belt was chosen for this job because it meets squarely the heavy punishment involved in moving great abrasive masses at high speeds and at minimum cost.

Wherever belts must possess the unusual in ruggedness and dependable long life, be sure to consult our nearest distributor or field technician, or write us direct.

BOSTON WOVEN HOSE & RUBBER COMPANY
FACTORY: CAMBRIDGE, MASS., U.S.A.
P. O. BOX 1071, BOSTON, MASS., U.S.A.

BOSTON WOVEN HOSE TRADE MARK AND RUBBER COMPANY

USE HEADED AND THREADED FASTENERS FOR ECONOMY AND RELIABILITY

BRASS
BOLTS
NUTS
STUDS

Brass and bronze, all types—every non-ferrous metal—available in all standard dimensions or to your own specifications.



Better Bolts of Iron, Steel, Brass and Other Metals Since 1882

"THE BOLT MAN"

PAWTUCKET
MANUFACTURING COMPANY
327 Pine Street, Pawtucket, R. I.
THE PLACE TO SOLVE YOUR BOLT PROBLEMS

WPB-OPA DIGEST

Cut Back Contracts—WPB—Opening of a drive to obtain prompt cancellation of all orders stemming from contracts that have been cut back was announced by J. A. Krug, Chairman, WPB.

April Contract Terminations Double Those for March—OWI—Terminations initiated in April were $1,800,000,000, almost double March terminations and two and one-half times the average terminations for the first quarter of 1945.

Improper Use of "U. S. Property" in Advertising—OWI—"Army and Navy", "U. S. Property" and similar advertising or labels are not permitted for goods not originating from the Government as surplus goods and not conforming to Government specifications, SPB announced in conjunction with FTC.

Controls Lifted on Domestic Silver—WPB—All controls on the use of domestic silver have been lifted by amendment of Conservation Order M-199. However, restrictions on the use of foreign silver continue in effect.

Ceiling on Zinc Scrap—OPA—Establishment of a maximum price of 4.95 cents per pound, f.o.b. point of shipment, for zinc base forming and stamping dies sold as scrap was announced in Amendment No. 1 to Maximum Price Regulation No. 3.

Steel Warehouses to Replace Stock—WPB—A new plan to enable steel warehouses to replace their stocks became effective on July 1, 1945, through the issuance of Direction 3 to order M-21.

Paperboard Buyers East of Rockies—OPA—Buyers of paperboard east of the Rocky Mountains are no longer required to keep records of their purchases on file, according to Amendment 21 to Revised Price Schedule 32.

Prices of Ungraded Hardwood Lumber—OPA—Establishment of dollar-and-cent maximum prices for ungraded hardwood lumber sold by small mills in the Appalachian hardwood lumber region have been set forth in amendment No. 20 to Maximum Price Regulation No. 146.

Ease Controls on Electronic Equipment—(WPB-8196)—Amendments to General Limitation Order L-265, which governs electronic equipment, were announced by WPB.

Aluminum Foil—WPB—Permission to use MRO (maintenance, repair and operating) ratings and symbols to purchasee processed aluminum foil for wrapping purposes, previously restricted to manufacturers of certain types of cheese, has been extended to all persons who conduct businesses listed in Schedule A to Controlled Materials Plan Regulation 5, and who need aluminum foil for their own use.

(*Continued on page 290*)

GRIFFIN

The Blade that Doesn't Shatter, Sag or Bind —

GRIFFIN
Soft Center

HARD-TEMPERED along the back — for reserve strength and stiffness where needed. Softer—but TOUGH—through the center, for flexibility and break-resistance. Extra hard teeth—for sure cutting and long service. A many-purpose hand blade developed exclusively by Griffin to cover widest possible range of uses.

Other Special Griffin Blades

GRIFFIN HIGH SPEED STEEL — For toughest alloys. Hand and power sizes.

GRIFFIN MOLYBDENUM HIGH SPEED—For low-cost cutting of all but very hardest alloys. Power and hand sizes.

GRIFFIN NON-STRIP—Economical hand blade that cuts thinnest sheet or tube without tooth breakage.

Your local Griffin distributor will supply you. If you've a specially difficult cutting problem, consult us — without obligation . . . Write for FREE Griffin Blade folder.

General Sales Agent
JOHN H. GRAHAM & CO. Inc.
105 Duane St., New York 8, N. Y.

GRIFFIN
Hack Saw Blades
MADE BY G. W. GRIFFIN CO., FRANKLIN, N. H. • 1880-1945



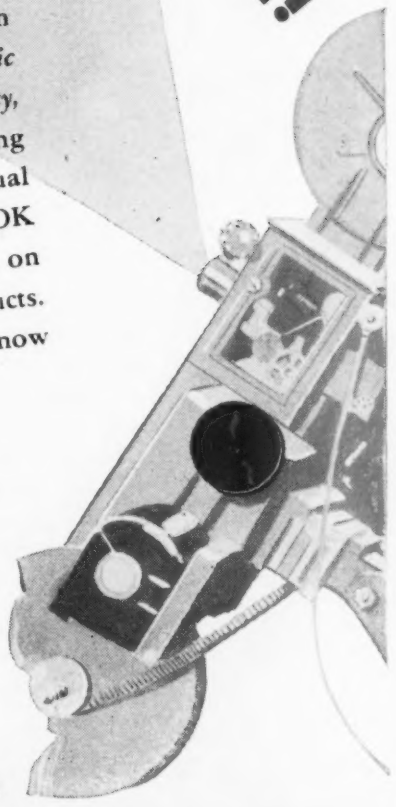
INSUROK cuts costs way down!

—for Motiograph of Chicago!

Motiograph saves at least $2.50 every time they make a rotary stabilizer for the sound head of a motion picture projector—thanks to the use of INSUROK—recommended by Richardson Plasticians. Stabilizer housings are made of Molded INSUROK; the covers, of Laminated INSUROK. The combination holds a flywheel which operates in a special liquid to reduce film flutter and prevent annoying tone distortion.

This outstanding industrial application is typical of the way in which INSUROK Precision Plastics—with their *high mechanical and dielectric strength, lightness, easy workability, and smooth, shiny finish*—are meeting exacting requirements with unusual economy and efficiency. INSUROK is ready to go to work for you on your present or postwar products. Write Richardson Plasticians now for complete information.

Shown Above: Complete Rotary Stabilizer unit, with Molded INSUROK housing—metal insert—and Laminated INSUROK cover. Used by Motiograph, Chicago, Ill.



INSUROK *Precision Plastics*

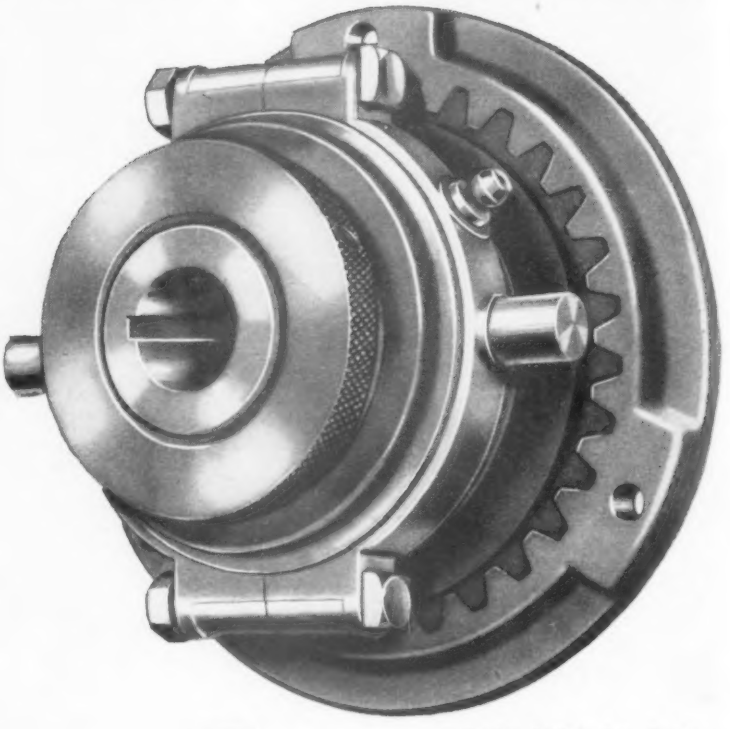
The RICHARDSON COMPANY

MELROSE PARK, ILL. NEW BRUNSWICK, N. J. FOUNDED 1858 INDIANAPOLIS 1, IND. LOCKLAND, CINCINNATI 15, OHIO
DETROIT OFFICE 6-252 G. M. BUILDING, DETROIT 2, MICHIGAN NEW YORK OFFICE 75 WEST STREET, NEW YORK 6, N. Y.
CLEVELAND OFFICE 326-7 PLYMOUTH BLDG., CLEVELAND 15, OHIO

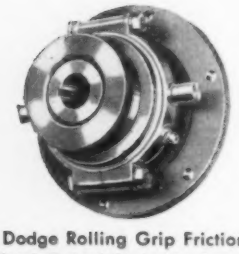
ROLLING GRIP

A GREAT NEW DEVELOPMENT IN FRICTION CLUTCHES

No Toggles! In the Dodge Rolling Grip Clutch, power transmitting pressure is developed by a circle of hardened steel balls. These are forced into a wedge-shaped groove by the sliding cam. The cam and groove contours utilize the basic mechanical principle of the wedge to multiply the force exerted on the shifter collar into a much greater force on the friction disc.



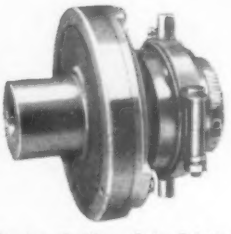
Dodge Rolling Grip Friction Clutch Gear Tooth Mechanism



Dodge Rolling Grip Friction Clutch Bolted Plate Mechansim



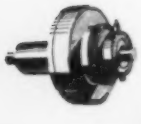
Dodge Rolling Grip Friction Clutch With Sleeve



Dodge Rolling Grip Friction Clutch Cut-off Coupling









Another achievement of Dodge Transmissioneering—designed to give outstanding flexibility and ease of control to light machinery, without any sacrifice of positive drive—and available at low cost!

The Dodge Rolling Grip Clutch is especially adapted to bread wrapping, sewing, floor scrubbing, bag making, tobacco, textile, and other such machines. It is rugged, compact, easy to adjust. And it is available from Dodge distributors' stock. Call the Dodge Transmissioneer in your territory for information about this and other new developments in power transmission equipment.

Copyright 1945 Dodge Mfg. Corporation



There are 257 Dodge factory graduate Transmissioneers, located in principal cities, to show you new and better ways of transmitting power.

Sign of the Dodge Transmissioneer

DODGE MANUFACTURING CORPORATION, MISHAWAKA, INDIANA, U. S. A.

DODGE
MISHAWAKA

TRANSMISSIONEERED MEANS ADVANCED DESIGN IN POWER DRIVES

McKAY Stainless Steel ELECTRODES



McKAY GRADE	A.I.S.I. TYPE No.	USE AND CHARACTERISTICS	SIZES
18-8	308	For welding Stainless Steels from 17 Chrome, 7 Nickel to 20 Chrome, 10 Nickel. Weld metal will be equal or superior to parent metal in corrosion and physical properties.*	1/16"—5/64"—3/32" 1/8" —5/32"—3/16" 1/4"
25-12	309	For welding type No. 309 Stainless Steel and stain clad plate where higher Chrome Nickel content is desired than can be secured with 18-8 Electrodes.*	1/16"—5/64"—3/32" 1/8" —5/32"—3/16" 1/4"
25-12 Cb	309 Cb	For welding type 309 Cb Stainless Steel and for multiple pass weld where interpass temperature may be up long enough for carbides to form.*	1/16"—5/64"—3/32" 1/8" —5/32"—3/16" 1/4"
25-20	310	For welding type 310 Stainless Steel. Also widely used for welding plain Carbon Steel up to .50 Carbon and low Chrome Steels where post heat treatment is not practical.*	1/16"—5/64"—3/32" 1/8" —5/32"—3/16" 1/4"
18-8 Mo	316	For welding type 316 Stainless Steels. Molybdenum content of weld deposit 2 to 3%.	1/16"—5/64"—3/32" 1/8" —5/32"—3/16" 1/4"
18-8 Mo	317	For welding type 316 or 317 Stainless Steels. Molybdenum content of weld deposit 3 to 4%.	1/16"—5/64"—3/32" 1/8" —5/32"—3/16" 1/4"
15-35	330	For use on type 330 Stainless Steels where welds are subject to extremely corrosive agents or require heat resistance up to 2100°F.*	3/32"—1/8" —5/32" 3/16"
18-8 Cb	347	For welding type 347 and 321 Stainless Steels where welds may be exposed to service temperatures between 900°-1500°F.*	1/16"—5/64"—3/32" 1/8" —5/32"—3/16" 1/4"
12 Cr	410	For welding type 410 Chromium Steels. Weld structure is martensitic requiring preheat and post heat treatment to refine grain structure.*	3/32"—1/8" —5/32" 3/16"
16 Cr	430	For welding type 430 Chromium Steels. Weld structure is normally ferretic. Preheat and post heat treatment required to eliminate stresses.*	3/32"—1/8" —5/32" 3/16"
18 Cr	442	For welding type 442 Chromium Steels. Weld structure is ferretic and subject to grain growth. Preheat and post heat treatment required to eliminate stresses.*	3/32"—1/8" —5/32" 3/16"
28 Cr	446	For welding type 446 Chromium Steels. Weld structure is ferretic and subject to grain growth. Preheat and post heat treatment required to eliminate stresses.*	3/32"—1/8" —5/32" 3/16"
5 Cr Mo	502	For welding type 501 and 502 Chromium Steels. Weld structure is martensitic requiring preheat and post heat treatment, to refine grain structure.	3/32"—1/8" —5/32" 3/16"
15-60	....	For welding Nichrome Steel and similar compositions requiring toughness, resistance to oxidation, nitriding and carburization.	1/8" —5/32"—3/16'
Frogalloy	....	Weld deposit of work hardening type. Used for building up wearing surfaces subject to impact.	1/8" —5/32"—3/16" 1/4"
Tool and Die	....	For repair and build up of air hardening tools and dies. Has good abrasion resistance properties.	3/32"—1/8" —5/32" 3/16"
Armorloy A-8	....	For welding Armor Plate and other difficult weldable alloys. Has high resistance to weld cracks when used with dissimilar alloys.	3/32"—1/8" —5/32" 3/16"—1/4" —5/16" 3/8"

*These Electrodes are supplied with Titania coating for DC reverse polarity unless otherwise specified. They are available in Lime coating for DC or AC and in a special Titania coating for AC on request.

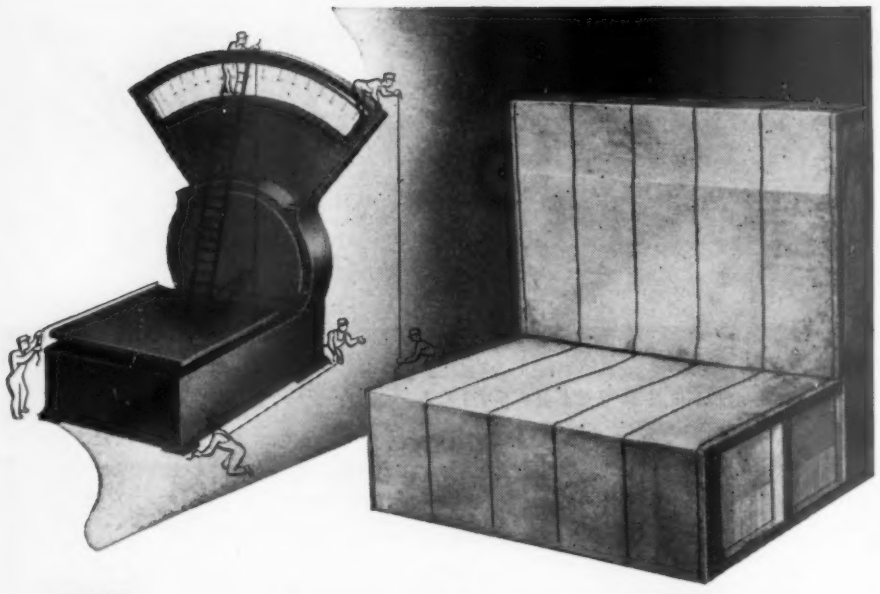
The Titania coating for DC reverse is green in color. The Lime coating for DC or AC is grey in color. The Titania coating for AC is cream in color.



GENERAL SALES OFFICES: YORK, PA.

THE McKAY COMPANY
PITTSBURGH, PA.

WELDING ELECTRODES . . . COMMERCIAL CHAINS . . . TIRE CHAINS



Designed for Giving

PERFECT PRODUCT PROTECTION

GENERAL'S
"Part of the Product" Plan

GENERAL Engineered Shipping Containers are designed to the product. Frequently the product and the container come off the production line together—as a unit.

Result: You save space, materials, man-hours and packing costs.

Wherever products are packed, there is a need for GENERAL-Engineered Shipping Containers.

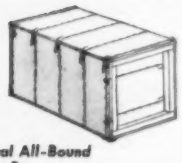
They're designed specifically for the product . . . designed to faithfully follow the profile of the product. Special inner-packing, blocking and reinforcement provide added protection . . . prevent shifting and damage in transit.

Let us tell you about GENERAL'S "Part of the Product" Plan. Learn how GENERAL Engineered Shipping Containers save materials and man-hours . . . conserve shipping space and speed production!

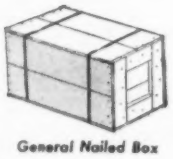
Our engineers will be glad to help you with your postwar packing problems. Write today for information.



General Corrugated Box



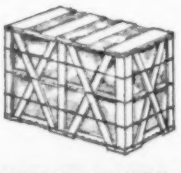
General All-Bound Box



General Nailed Box

General Cleated Corrugated Container





General Wirebound Crate



Send for "The General Box"—this booklet illustrates General Box Company's "Part of the Product" Plan.

ENGINEERED SHIPPING CONTAINERS

General BOX COMPANY

GENERAL OFFICES: 48 W. Illinois St., Chicago, Ill.

DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, Sheboygan, Winchendon.

Continental Box Company, Inc.: Houston, Dallas.

(*Continued from page* 286)

List of Plants with Open Capacity—WPB—A list of manufacturing plants with open capacity has been prepared by WPB's production readjustment committee as a part of the plan to speed the placement of war contracts and to retain for necessary war production labor that is needed for the war job. The list will be revised every two weeks and information will be available in district offices of the board.

Buying Ahead of Needs — WPB — While WPB is prepared to relax its rules governing the acquisition of materials as rapidly as supply permits, it does not intend to allow hoarding preemptive buying or buying ahead of need of production.

Waste Paper Salvage — WPB — Although waste paper collections have been the highest for any month since the current paper salvage campaign began in 1943, efforts to collect and salvage paper should not be relaxed since wartime demands continue to rise, the conservation and salvage division WPB reported.

Eases Sales Control on Surplus Steel—WPB—Special sales of idle, excess or surplus steel, copper and copper base alloy or aluminum in controlled material forms may now be made to anyone without WPB authorization and without requiring the buyer to use a CMP allotment symbol or number.

Certain Containers on Urgency List—WPB—Fiber containers and drums, steel drums and pails, and wooden boxes and kegs have been placed in the National Production Urgency list, entitling manufacturers of those items to higher urgency ratings for manpower when required to deliver high-rated government orders.

Machine Tools—WPB—All special controls over the production and distribution of machine tools having a retail sales price of less than $1,000 have been removed by amendment of Equipment Order E-1-b.

Woodworking Machinery—WPB—Preference ratings for Class 11 woodworking machinery (that which had a producer's list price of $350 or less on October 15, 1942) are no longer required under an amendment to Limitation Order L-311.

V-1 Type Boxes Discontinued—WPB—Manufacture of the strongest type of V-boxes known as V-1, has been discontinued to conserve the critical supply of containerboard and because it has been found that the next type of fibre shipping container, V-2 has proved adequate.

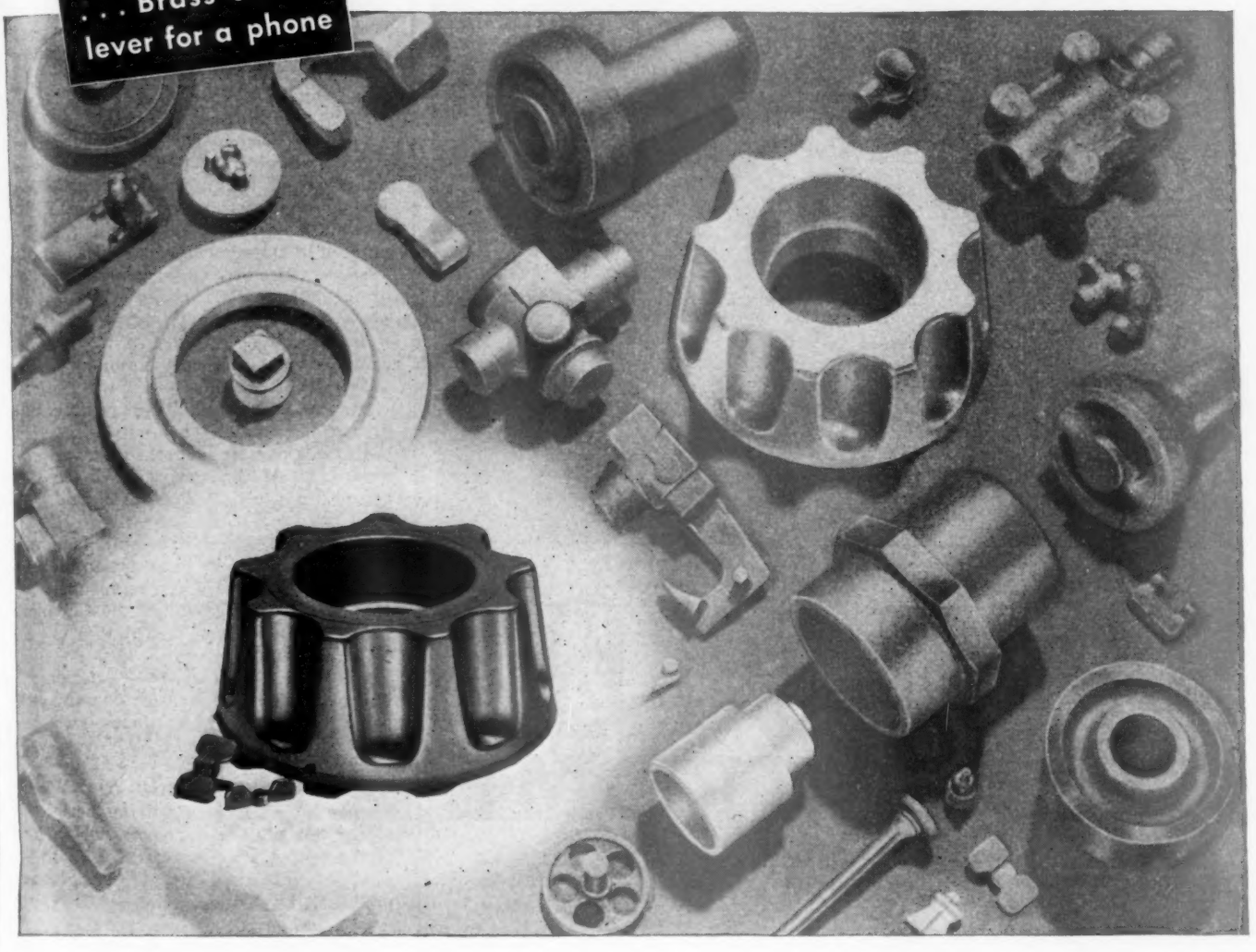
CMP Amended—WPB—Direction 25 to Controlled Materials Plan Regulation 5 was amended by WPB to permit the use of CMP Regulation 5 ratings and symbols to obtain maintenance, repair and operating supplies and jigs, dies and fixtures for reconversion to civilian production, in advance of actual production, by a person who proposes to start manufacturing a product he is not now making.

(*Continued on page* 292)

SCOVILL FORGINGS

for dependability
under difficult operating conditions

Aluminum (censored) for a plane . . . Brass switch lever for a phone



Censorship forbids telling you any more about the end use of the aluminum forging spotlighted above than that it's for a secret device on big bombers. We can say, though, that Scovill engineers, working backwards from the finished piece, designed and produced a forging that saved material and machining costs and helped retain in the finished piece the great strength required for its particular function.

Also under Government secrecy orders is the tiny, brass thumb switch lever for a hush-hush telephone. Scovill forges two levers in one piece and saws them apart to keep strength high and costs low.

Those and the other illustrated examples of Scovill's ingenious forging ability suggest that you, like more than 3,000 satisfied Scovill customers, can save time, trouble and money by letting Scovill do your designing, die-making and forging.

For further proof of Scovill's ability to design the *right* forging for you and produce it from the *right* metal, fill in the coupon below and get the free booklet "Masters of Metal".

Scovill
MANUFACTURING COMPANY
WATERBURY 91, CONN.

Please send me a free copy of *"Masters of Metal"* booklet describing your facilities. I am interested in the metal forgings applications checked.

☐ Valves, Torch Heads, Regulators, for compressed gas cylinders, Welding and Blow Torches, etc. ☐ Household Appliance Parts ☐ Plumbing Goods (valves, etc.) ☐ Industrial Instrument Parts ☐ Aircraft Parts ☐ Communications Equipment Parts ☐ General Electrical Product Parts ☐ Fire Extinguishers ☐ Cameras ☐ Oil Burners ☐ Band Instruments

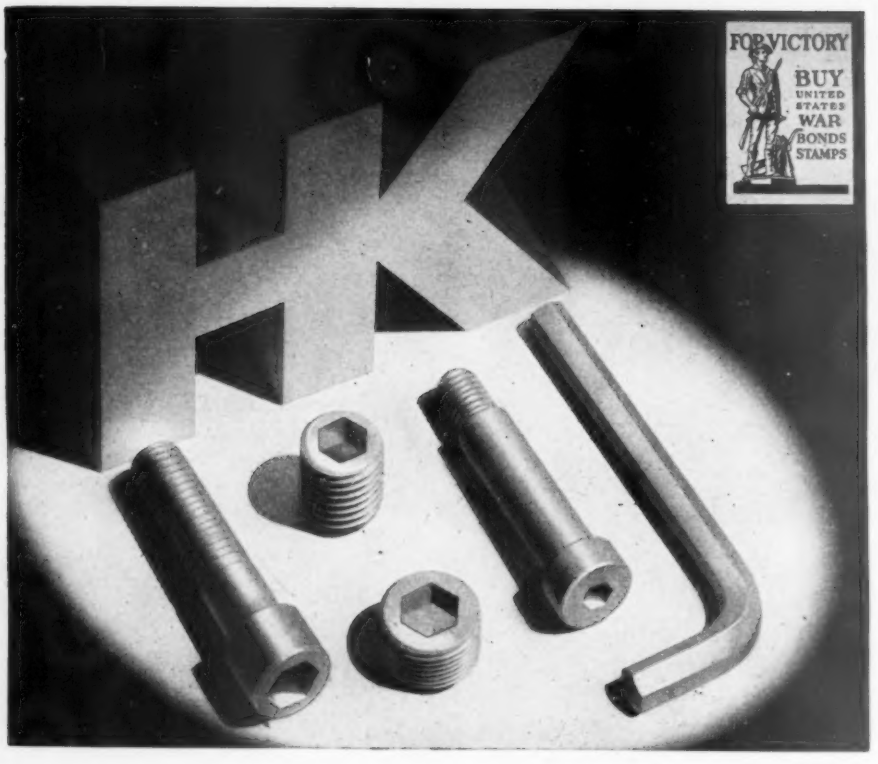
Other applications.....

SCOVILL MANUFACTURING COMPANY
Forgings Division
21 Mill Street, Waterbury 91, Connecticut

Name .....

Company .....

Address .....



SOCKET SCREWS
by HOLO-KROME



THE BETTER FASTENING METHOD

War-time applications — the most severe of proving grounds — prove the many advantages and the unfailing performance of Holo-Krome FIBRO FORGED Socket Screws — the Completely Cold Forged Screws . . . For the better fastening method specify "HOLO-KROME".

THE HOLO-KROME SCREW CORP. — SOCKET SCREW PRODUCTS — HARTFORD 10, CONN. U. S. A.

(*Continued from page 290*)

Fiber Containers Charged Against Packers' Quota—WPB—Further emphasis was placed on the tightness of the fiber shipping container supply, when the WPB ruled that any new "service carton" wherein a supplier sends empty glass jars, cans or other enclosures to a packer, must be charged against the latter's quota if the packer uses it to reship the filled smaller packaging units.

Inventory Controls—WPB—Modification of inventory controls under Priorities Regulation 1 and Controlled Materials Plan Regulation 2 was announced by WPB. The amended PR 1 also explains the disposition of amendments, directions, schedules and appendices under a revoked order or regulation.

Controlled Materials—WPB—Allotments of controlled materials to nonmilitary claimant agencies for the third quarter carry with them no advance allotment authority greater than that already outstanding for the fourth quarter, Lincoln Gordon, program chairman and chairman of the Requirements Committee of WPB said.

Protective Coatings—WPB—Manufacturers who are planning to reconvert to civilian production may face a short supply of suitable protective coatings, the Chemical Bureau of WPB emphasized.

Increase in Steel Prices—OPA—An increase that will amount to between one and two per cent in basic steel prices was announced by OPA.

Increases in Prices of Steel—OPA—Warehousemen and jobbers will be permitted to pass on to their customers only a few of the ceiling price increases of $2 to $7 per ton authorized for 14 basic steel products at the mill level.

Fiber Shipping Containers—WPB—Limitation Order L-317, restricting the use of fiber shipping containers, was amended, to make clear that in shipping component or repair parts of products listed in Schedule 111, the use of fiber shipping containers is unrestricted unless those parts are specifically mentioned in L-317 schedules.

* * *

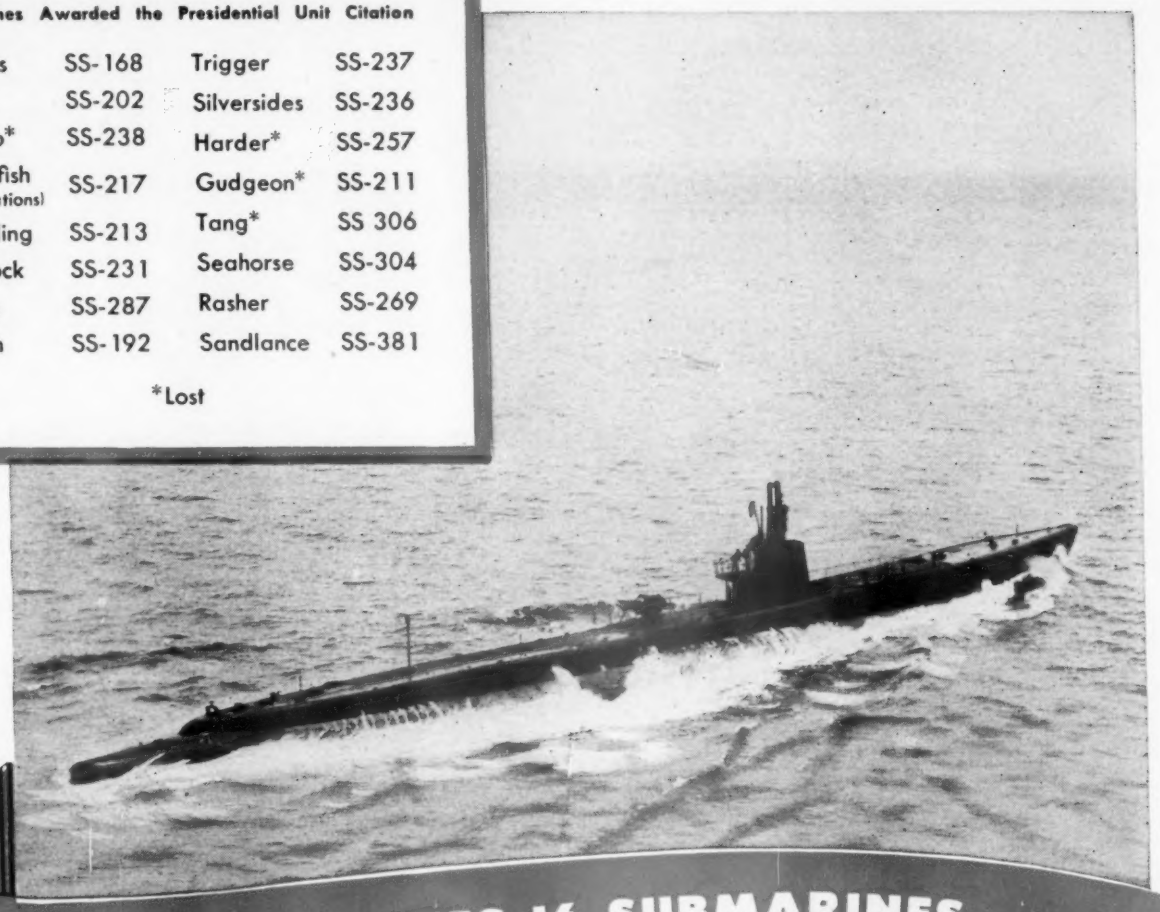
AIR EXPRESS RATES IN POSTWAR PERIOD

Replying to the question "What are Air Express rates going to be in the postwar period?", L. O. Head, president, Railway Express Agency, in a pamphlet "Air Express Now and Tomorrow", states: "Diligent study of developments in aviation indicates such a wide difference of opinion as to costs involved in air transport service after peace comes that this question cannot be satisfactorily answered at this time. There is no settled cost basis by which any shipper or receiver can determine now what portion of his traffic can be moved by air in the postwar period. Until some degree of

(*Continued on page 296*)

Submarines Awarded the Presidential Unit Citation			
Nautilus	SS-168	Trigger	SS-237
Trout*	SS-202	Silversides	SS-236
Wahoo*	SS-238	Harder*	SS-257
Guardfish (two citations)	SS-217	Gudgeon*	SS-211
Greenling	SS-213	Tang*	SS 306
Haddock	SS-231	Seahorse	SS-304
Bowfin	SS-287	Rasher	SS-269
Sailfish	SS-192	Sandlance	SS-381

*Lost



EXIDE SALUTES 16 SUBMARINES

Honored by the Presidential Unit Citation ★

As this is written, sixteen U. S. submarines have won the highest honor which can be awarded to a unit of our armed forces. Their achievements stand out among the proudest in American naval history. And the complete story is still to be told.

Their phenomenal successes are a result of superb skill and a brave fighting spirit. As we salute these heroic ships, we take great pride in the knowledge that all but one of them was powered by Exide Ironclad Batteries.

The same type of Exide Ironclad Batteries used to propel a 2000-ton submarine also furnishes motive power for the efficient, time-saving, electric industrial truck—the modern, economical method of materials handling. It furnishes motive power for haulage equipment in mines, for lighting and air-conditioning railroad cars, and for cranking powerful Diesel locomotives.

And millions of users of Exide automotive batteries will tell you that "When it's an Exide you start."

Exides have been supplying industry's storage battery needs for 57 years—with economy, dependability and long-life. Information regarding the application of storage batteries to any business is available upon request.

ARMY E NAVY

Exide
BATTERIES

THE ELECTRIC STORAGE BATTERY COMPANY, Philadelphia 32

Exide Batteries of Canada, Limited, Toronto



Your Safety Director's pep talks

PUT EXTRA PROFITS IN YOUR BUSINESS

Regular safety meetings are just one of the many methods your Safety Director is using to keep accidents down, production up, and manpower waste at a record low.

Top management in some plants added a Safety Director for the first time during this war. They have found him an invaluable man. Because of him, war-hurried methods have been less costly in lives and in dollars. And top management will find the Safety Director equally valuable when post-war competition puts production efficiency to the severest test. Consulting him frequently is a wise move when management seeks to make best use of manpower in lowering production costs.

FREE 64-PAGE BOOK!

Send for your illustrated copy of Hy-Test's Safety Engineer's Digest, "Let's Use Our Heads and Save Our Feet," written expressly for "those who believe toes are worth saving." It offers a complete guide to greater foot protection for your workers.



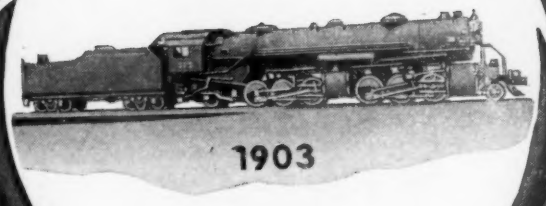
HY-TEST SAFETY SHOES

HY-TEST *Safety Shoes*

HY-TEST DIVISION • INTERNATIONAL SHOE COMPANY • ST. LOUIS 3, MO

Used in the MOST ADVANCED STEAM LOCOMOTIVES of every period . . .

Pittsburgh BOILER TUBES

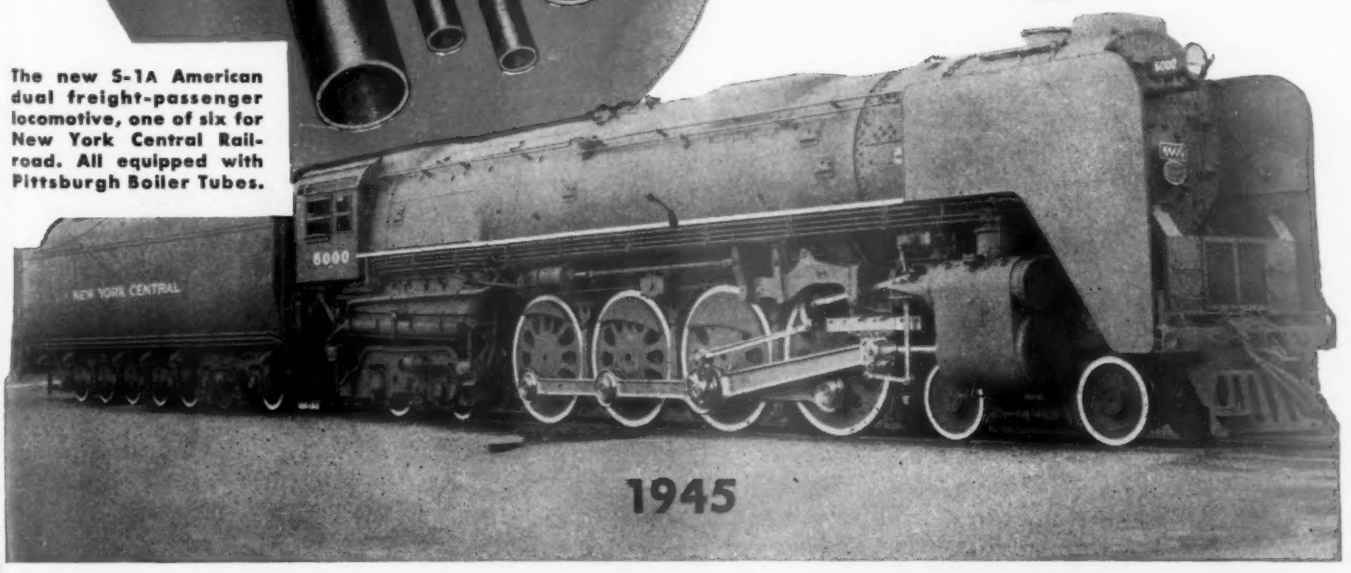


The complete dependability which has characterized *Pittsburgh* Boiler Tubes for 42 years, fully qualifies them for service in the great new *American* built, dual-purpose locomotive, "The Niagara." First of a number of such giants of the rails built for *New York Central* to handle both fast passenger and freight, approximately *4700* feet of *Pittsburgh Seamless* tubes her tremendous boiler.

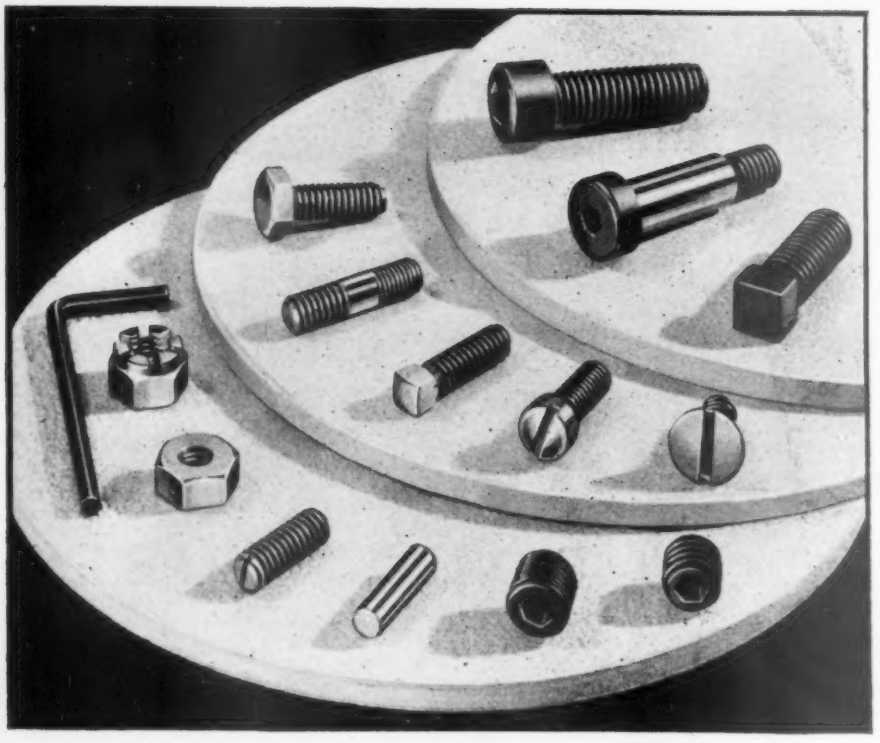
Pittsburgh Seamless has helped advance the progress of *transportation* not alone in boiler tubes used in the railroad and marine field but in varied and equally important applications in the automotive and aviation industries. From the successful A.R.A. approved Tubular Railway Axle to the selection of Boiler Tubes for this advanced steam locomotive, confidence in the integrity of *Pittsburgh Seamless* is based on demonstrated superior quality.

PITTSBURGH STEEL COMPANY
1671 GRANT BUILDING PITTSBURGH, PA.

The new S-1A American dual freight-passenger locomotive, one of six for New York Central Railroad. All equipped with Pittsburgh Boiler Tubes.



1945



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"Chicago" Standard Screw Products are accurately made of finest quality materials, and are available to you through our selected distributors.

Authorized distributors carry complete stocks of all items in this line.

CHICAGO *Safety Plus* line includes:

Socket Head Cap Screws • Socket Set Screws • Stripper Bolts • Square Head Dog Point Set Screws • Pipe Plugs • Keys for Safety Plus Products.

Complete line includes:

Hexagon Head Cap Screws • Square Head Cup Point Set Screws • Headless Set Screws • Fillister Head Cap Screws • Flat Head Cap Screws Taper Pins • Milled Studs • Semi-Finished Hexagon Nuts • Semi-Finished Hexagon Castellated Nuts.

Sturdy cardboard packages, clearly labeled and carefully packed, protect "Chicago" Standard Products from the time they leave our factory until they are required for actual use. You can count on a standard of quality which is sure to satisfy.

ARMY E NAVY

These Fine Products are sold only thru Authorized Distributors

THE CHICAGO SCREW CO.

ESTABLISHED 1872

1026 SO. HOMAN AVENUE CHICAGO 24, ILL.

(*Continued from page 292*)

exactness is achieved in the matter of rates and charges, the continued forecastings of what can and will be moved by Air Express are not constructive and do more harm than good."

CHANGES IN LIMITATION ORDER L-120

Several changes in the requirements of Limitation Order L-120, which controls the standardization and simplification of paper and paperboard, have been announced by the War Production Board.

The first change, covered by amendment of Direction 1 to the order, requires that the weight limits set out in the several schedules of the order determine the weights of new paper produced and used for converting purposes. Although some weights permitted in the use schedules exceed weights of new production, the use schedules remain in effect as they are designed to permit utilization of paper produced prior to the establishment of the present manufacturing weights, Paper Division officials said.

Chemical wood writing papers now include converting grades of papeterie paper, according to a clarification of the direction. Another change is the inclusion of Bleached Kraft envelope paper in the same field as book grades of envelope paper, which places a maximum weight for white paper for commercial envelopes at 20 pound folio.

Amendments to Schedules I, II and III of the order, which affect paper and paperboard for use in commercial printing and book publishing, and fine writing papers, permit the use of cover papers for other than making covers. It has been established that "cover" paper is used for a variety of purposes other than as covers for books, pamphlets and similar uses, and the restriction imposed on April 3 is now removed insofar as previous historical uses are concerned. This, officials said, will prevent unfair discrimination and undue confusion. The maximum weight of cover papers, however, it was pointed out, remains the same—20" x 26" at 50 pounds per ream, which was established to conserve pulp.

PORCELAIN ENAMELED STEEL UTENSILS STANDARD

Commercial Standard CS100-44, Porcelain Enameled Steel Utensils, (second edition), is announced by I. J. Fairchiled, Chief, Division of Trade Standards, National Bureau of Standards, Washington, D. C.

GRADING OF DIAMOND POWDER PROPOSED COMMERCIAL STANDARD

The Division of Trade Standards, National Bureau of Standards, Washington, D. C., has distributed for consideration of those interested, Recommended Commercial Standard for Grading of Diamond Powder TS-3802.



14,000 MILES AWAY

Yes, it's 14,000 miles from France to Tokyo! Men, munitions, and supplies must be sent across the seas in ever-increasing numbers, if we are to finish off our final enemy as quickly as possible. Millions of Gaylord Boxes will be used to protect these shipments on the routes to Victory.

It will take *all we've got* to defeat Japan. So, stay on that war job . . . keep on buying War Bonds and keep doing all your country asks.

Keep on Buying More and Bigger War Bonds

GAYLORD CONTAINER CORPORATION • General Offices • SAINT LOUIS

KRAFT GROCERY BAGS AND SACKS • KRAFT PAPER AND SPECIALTIES
CORRUGATED AND SOLID FIBRE BOXES • FOLDING CARTONS

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IS THE SOLUTION TO YOUR PROBLEMS ON
SPECIAL WASHERS AND SMALL STAMPINGS

Bring your troubles to us at Master Products. The experience gained in 25 years of solving Special Washer and Small Stamping problems enables us to serve you well.

OVER 10,000 SETS of TOOLS at your disposal

If these won't give you what you want, our Tool and Die Department will make up special designs for you at reasonable cost. Just send us your blueprints or specifications.

Also a full line of Standard Washers in kegs or cartons.

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THE MASTER PRODUCTS COMPANY
6400 PARK AVE. • CLEVELAND 5, OHIO

FURTHER LIBERALIZATION OF CMP REGULATIONS

Further liberalization of Controlled Materials Plan regulations was effected by the War Production Board through amendments to CMP Regulation 1 and revocation of Direction 4 to CMP Regulation 9-A.

CMP Regulation 1 was amended to provide that a manufacturer may exceed an authorized production schedule for a Class B product in a case where he has obtained the material for another purpose and it can no longer be used for that purpose.

The amended regulation continues the provision for filling a deficiency in a production schedule to the extent that a deficiency not exceeding 10 per cent in an authorized production schedule for a Class B product during the first quarter of 1945 may be made up in the second calendar quarter of 1945. If a production schedule is authorized by months, the amount authorized during each of the three months of a calendar quarter may be totaled for this purpose.

The amended regulation requires that an order for aluminum bearing an AM number from AM-0001 through AM-9599 be treated as an authorized controlled material order.

Revocation of Direction 4 to CMP Regulation 9-A now permits a repairman to use the V-3 allotment symbol to obtain copper pipe or tubing and copper-base-alloy pipe and tubing without the former restriction to certain sizes and types.

SURPLUS PROPERTY DISPOSAL TO GOVERNMENTAL AGENCIES

Surplus property disposals to Federal agencies and State and local governments are given preference by Direction 4 to Controlled Materials Plan Regulation 5A, issued May 26, the War Production Board reports.

Any governmental agency in the United States, its territories or possessions or in the District of Columbia, is entitled to certain priorities in purchasing surplus property from Government disposal agencies, under the Surplus Property Act of 1944 and Surplus Property Board Regulation No. 2, WPB explained.

In order to implement these acts, a special MRO (Maintenance, repair and operating supplies and minor capital additions) rating of AA-2X, now granted by WPB's Direction 4 to CMP Regulation 5A, permits purchases from surplus for MRO use, in addition to MRO quotas.

Uprating of orders for surplus property is also permissible, WPB said. If entitled to use a rating of AA-5 under CMP Regulation 5A to obtain a certain quantity of surplus property, any government agency can use a rating of AA-2X and disregard quota restrictions.

WESTERN HEMLOCK PLYWOOD

Commercial Standard CS122-45, Western Hemlock Plywood, is now available from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C., at 5 cents per copy.

RED TYE PARTS BAGS



On the Spot WHEN NEEDED!

Make sure that small parts, accessories and replacements are on the spot when needed by putting them in a Chase Red-Tye Parts bag and attaching them right to the product. Avoid irritation and loss of time caused by overlooked or mislaid parts.

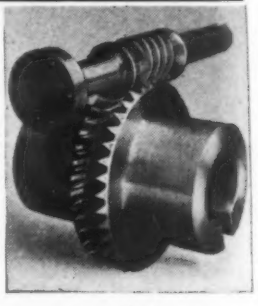
Chase Red-Tye Parts bags are available in many types and sizes . . . with or without tags or envelopes attached for letter, invoice or instruction sheet.

Write for samples and prices. Also inquire about Chase Red-Tye mailing bags . . . for the quick, safe delivery of small replacement parts.

CHASE BAG CO.
302 EAST PITTSBURGH AVE., MILWAUKEE, WIS.
ONE OF THIRTEEN GREAT FACTORIES

SIMONDS GEARS

QUALITY GEARS OF ALL TYPES
SPUR • BEVEL
MITRE • RACKS
WORMS
WORM GEARS
Cast and Forged Steel, Gray Iron Bronze Silent Steel Rawhide, Bakelite Made to Your Order



Simonds Gears are made to meet the strictest demands—the result of over 50 years' experience and master craftsmanship in building quality gears. Large sizes are a Simonds feature—spur gears are cut up to 12 feet in diameter.

Distributors for RAMSEY *Silent Chain Drives and Couplings*

THE SIMONDS GEAR & MFG. CO.
25TH AT LIBERTY
PITTSBURGH 22, PA.

If you will need

PISTON PINS

or other parts such as spindle bolts, ball bearings, knuckle pins, clutch plates, etc.

for products like these . . .



Our plant facilities and experienced manpower belong in your picture . . .

Before the war Burgess-Norton was one of the leading suppliers of piston pins to the automotive, farm equipment, compressor, marine and diesel industries. In the Post War, with enriched production know-how and facilities resulting from war production of these parts, Burgess-Norton will have even more to offer. Unchanged, however, will be our 42 year ideal: "To endeavor to function on every assignment as though we were a part of the organization being served."

Let's talk it over . . .

Write for the Free Booklet on our post-war facilities for the production of piston pins; ball bearings; hardened and ground screw machine parts; heat treated and hydrogen copper brazed steel stamping or forging assemblies. Burgess-Norton Mfg. Co., 200 Peyton Street, Geneva, Illinois.

ARMY NAVY

Burgess Norton

MANUFACTURING COMPANY

42 years in GENEVA, ILLINOIS

A Part is Never Made Right Unless it is Satisfactory to Our Customers

TRADE MARK
Starrett
REG U.S. PAT. OFF

stands for

Good HACKSAWS and BAND SAWS as well as for fine Tools

Your Starrett Tool Distributor stocks and recommends Starrett Hacksaws and Metal Cutting Band Saws. Ask for them on your next order. Made to meet standards of quality and performance worthy of the "World's Greatest Toolmakers", you'll find that they *cut quicker, last longer.*



STARRETT HACKSAWS

cover every cutting need:

For *hand* sawing — *Standard* Flexible Back, All Hard or "Semi-Flex"; "S-M" Molybdenum; 18-4-1 Tungsten; "Safe-Flex" high speed steel with flexible back and hard edge.

For *power* sawing — "S-M" Molybdenum; High Speed, 18-4-1 Tungsten Steel for light and heavy sawing of high alloy metals, stainless steel, phosphor bronze, tool steels, chrome steel, monel, etc.



STARRETT BAND SAWS

with hard edge and flexible back are made from a special tough alloy steel, with teeth accurately milled and set and with special heat treatment to assure great strength and long life. They are available in 10 widths, 3 gages and 8 pitches. Starrett "Skip-Tooth" Band Saws are available for fast cutting of magnesium, aluminum, bronze and other non-ferrous metals; also for special compositions, fibre, bakelite, plastics and wood.

Ask your mill supply distributor to make *yours* STARRETT'S.



Now, with 3 Service Stars

THE L. S. STARRETT CO., ATHOL, MASSACHUSETTS, U. S. A.

World's Greatest Toolmakers

STARRETT

PRECISION TOOLS • DIAL INDICATORS • GROUND FLAT STOCK
HACKSAWS • METAL CUTTING BANDSAWS • STEEL TAPES

REVOKE UTILITY CONTROLS

Revocation of virtually all controls on installation of facilities by electric, gas, water and communications utilities was announced by Edward Falck, director of the War Production Board's Office of War Utilities.

The new policy will permit utilities to make any addition to plant on an unrated basis, except construction of buildings with a materials cost in excess of $25,000, without obtaining prior authorization from Washington. Building projects costing less than $25,000 worth of materials also will be permitted on an unrated basis without authorization.

Utilities order U-1, the basic wartime regulation covering electric, gas and water utilities, has been amended as of June 2, 1945, to incorporate this "open-ending" of construction. Utilities Order U-3, regulating telephone companies, and Utilities U-4, which applies to the telegraph companies, will be similarly amended within a few days, Mr. Falck said.

MASTER DISKS STANDARD

The Division of Trade Standards of the Bureau of Standards, Washington, D. C., has issued Commercial Standard for Master Disks, identified as CS (E) 124-45. Mimeographed copies are now available.

R. C. DUNCAN RETURNS TO PRIVATE BUSINESS

The resignation of Russell C. Duncan, Deputy Director in charge of Surplus Sales and Merchandising, was announced by the Department of Commerce. His resignation became effective on May 21 at which time he returned to private business as head of the R. C. Duncan Company of Minneapolis and St. Paul, Minnesota.

Duncan has served as a dollar-a-year man for the Government for practically four years. His original assignment included the expansion of the industrial supplies industry as an Associate Chief in the Machine Tool Division of the Office of Production Management. Subsequently as Director of Field Operations for the War Production Board Redistribution Division, he set up a field organization responsible for exchange of production materials between industrial plants.

In 1943 he was appointed Deputy Regional Director of WPB in the Minneapolis Region functioning in that capacity until the field separation of the Smaller War Plants Corporation from WPB in 1943 when he became the Regional Director for SWPC.

Duncan returned to Washington to assist the Treasury Department in setting up the Surplus Property program a year ago. Through his guidance sales of surplus consumer goods have been decentralized to eleven regional offices in the country through eight commodity divisions: Wearing Apparel, Hardware, Furniture, Drugs, Automotive, Construction Machinery, Office Supplies and General Products.

You can be Sure of Uniformity and Quality when you Specify Globe !

Extra care in production control assures uniformity and quality in all classes of Globe steel tubes. Unvarying quality is safeguarded and production methods and materials exactly controlled by one of the largest and complete chemical and physical laboratories of its kind, concentrating on tubing characteristics and problems.

You can be sure of uniformity and quality when you specify Globe tubes — pressure, mechanical, or stainless.

GLOBE STEEL TUBES CO., Milwaukee 4, Wis., U.S.A.



GLOBE STEEL TUBES

5019

★ Pressure Tubes
★ Condenser & Heat Exchanger Tubes
★ Seamless Stainless Steel Tubes

GLOBE TUBES

★ Mechanical Tubing
★ Gloweld Welded Stainless Steel Tubes
★ Globeiron High Purity Iron Seamless Tubes

"WHY DIDN'T WE USE AKLO GLASS BEFORE?"



S. E. & M. Vernon, Inc., plant interior in Elizabeth, N. J.

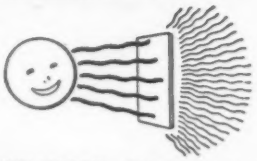
"We wonder now why we had not adopted Frosted Aklo long before," comments President Murray Vernon of S. E. & M. Vernon, Inc., Elizabeth, N. J., concerning their adoption of Blue Ridge Glass.

Among the advantages mentioned by Mr. Vernon, are "greatly increased light, reduction of sun glare and the use of artificial light. Heat from the sun," he reports, "is greatly reduced in the summertime, resulting in improved efficiency throughout the plant. We wonder now why we had not adopted Aklo Glass long before, and will surely use it on any expansion of our plant."

These statements are typical of the letters received from enthusiastic industrial users of Frosted Aklo Glass. This cool-appearing, blue-green glass reduces sun glare and cuts down on sun heat. Frosted Aklo is made by the Blue Ridge Glass Corporation, Kingsport, Tenn., and sold by Libbey-Owens-Ford through leading glass distributors. Ask your L-O-F Distributor for a Radiometer demonstration. Or write Blue Ridge Sales Division, Libbey-Owens-Ford Glass Company, 3875 Nicholas Building, Toledo 3, Ohio.

GET THESE THREE ADVANTAGES OF

***Frosted* AKLO**



REDUCES GLARE—Eliminates eyestrain and employee fatigue.



RETARDS SUN HEAT—Keeps workers comfortable on their jobs.



RENDERS SAVINGS—Eliminates shades or painting of glass.

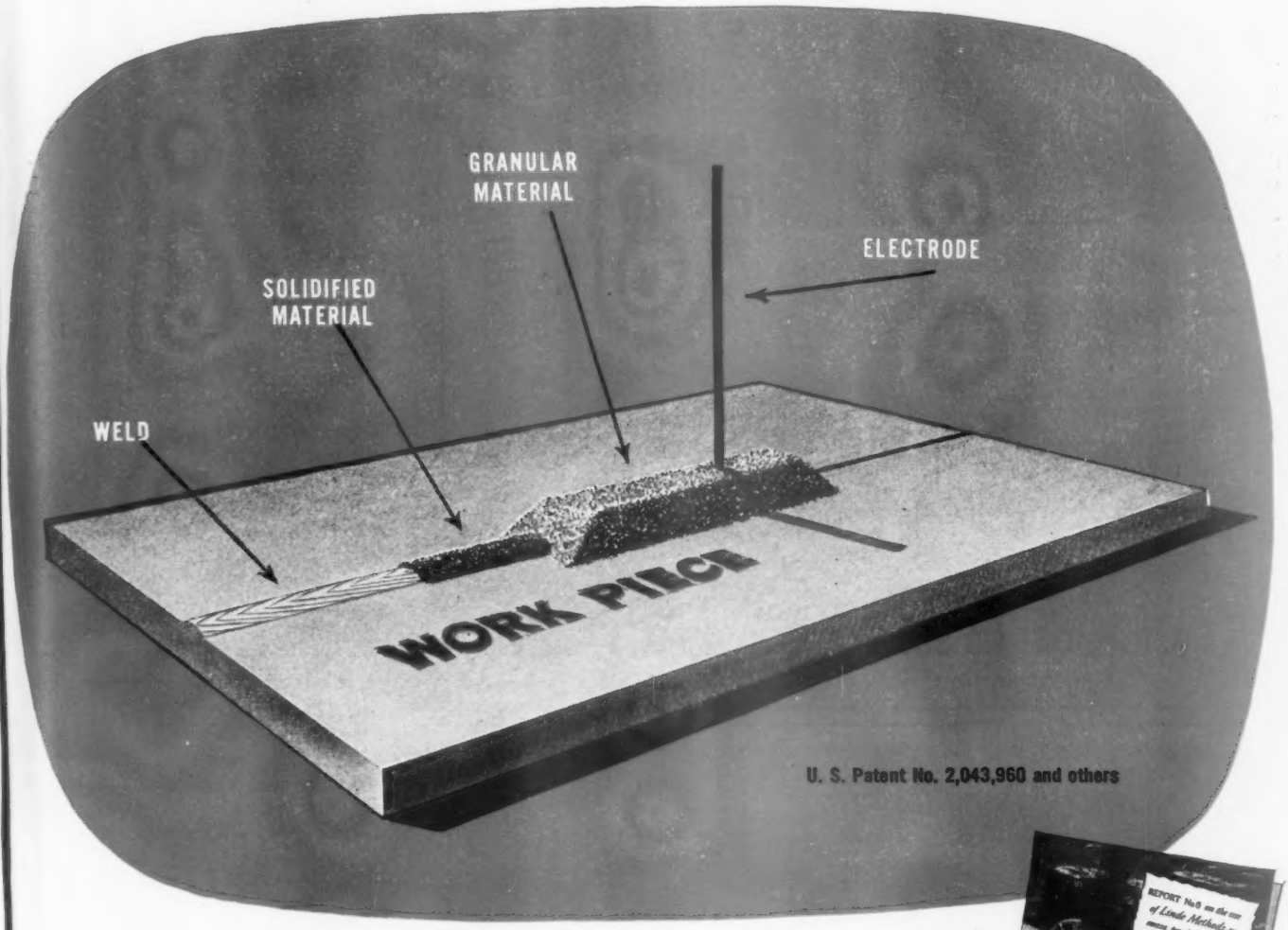
L O F

BLUE RIDGE AKLO GLASS

Heat-Absorbing · Glare-Reducing · Figured and Wire Glass

BLUE RIDGE GLASS CORP. MANUFACTURERS OF QUALITY GLASS KINGSPORT, TENN.

THIS IS UNIONMELT WELDING

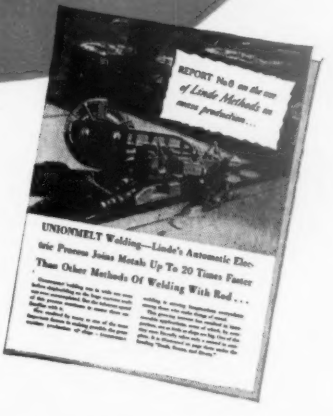


UNIONMELT Welding is easy to recognize. It is electric welding done as diagrammed above—and it makes top quality welds at speeds that are greater than with any other similarly applicable process!

UNIONMELT Welding, a process of welding electrically beneath a mineral melt, has received wide application since U. S. Patent No. 2,043,960 was issued. It is the electric welding process that is rated by many as one of the most important factors in the great wartime fabrication of steel.

Anyone may obtain a license to use UNIONMELT Welding through its developers—The Linde Air Products Company.

Linde can supply a wide variety of equipment and materials to apply UNIONMELT Welding. Linde representatives can help you determine where you can use the UNIONMELT process advantageously and what type of equipment is best suited to your work.



For additional information send for the folder "Report No. 6 on the Use of Linde Methods in Mass Production."

MARITIME "M" AWARD FOR OUTSTANDING PRODUCTION ACHIEVEMENT

THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

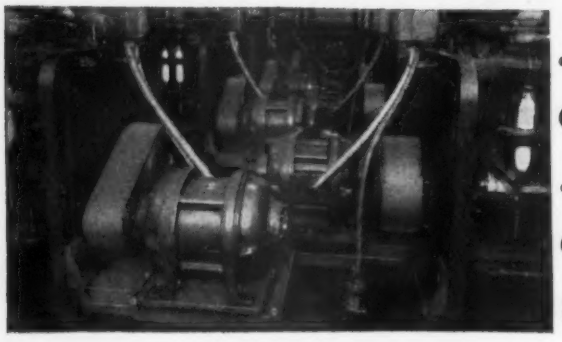
30 E. 42nd St., New York 17, N. Y. UCC Offices in Other Principal Cities

In Canada: Dominion Oxygen Company, Limited, Toronto

The word "Unionmelt" is a registered trade-mark of The Linde Air Products Company.

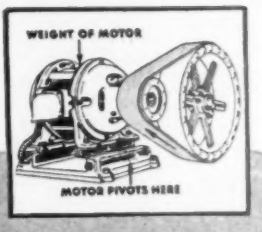
★ BUY UNITED STATES WAR BONDS AND STAMPS ★

TANNATE-ROCKWOOD DRIVES



. . . give more efficiency . . . with less expense for maintenance

Automatically controlled belt tension by means of the Tannate-Rockwood drive, assures maximum power transmission. This correct belt tension — neither too little nor too much — is maintained by the weight of the motor on the pivoted base. It delivers a uniform, steady, dependable pull — even under varying loads — from the moment power is turned on.



Sturdy, resilient, Rhoads Tannate belting, cuts maintenance costs to a minimum. Exerting a firm grip on the pulley, without slip or stretch, durable Tannate is 1/3 to 1/2 stronger than choice oak belting.

Here is a drive which combines efficiency and long service . . . for floor, wall, ceiling or vertical drives — with motors of whatever capacity service indicates. Write for further information.

RHOADS *Tannate-Rockwood* PRODUCTION DRIVE

J. E. RHOADS & SONS · 35 N. Sixth St., Philadelphia 6, Pa.

Established 1702 · NEW YORK · CHICAGO · ATLANTA



With victory — Johnson production, greatly enhanced through the war is ready for larger service through general distribution. Johnson research is prepared to help you with your high carbon steel wire problems.

JOHNSON STEEL & WIRE CO., INC.

WORCESTER 1, MASSACHUSETTS.

NEW YORK ATLANTA AKRON CHICAGO LOS ANGELES

Divisional Organization

(*Continued from page 76*)

Quality standards are set by company specifications, and the plant inspector has responsibility of saying whether a delivery does or does not conform to these standards.

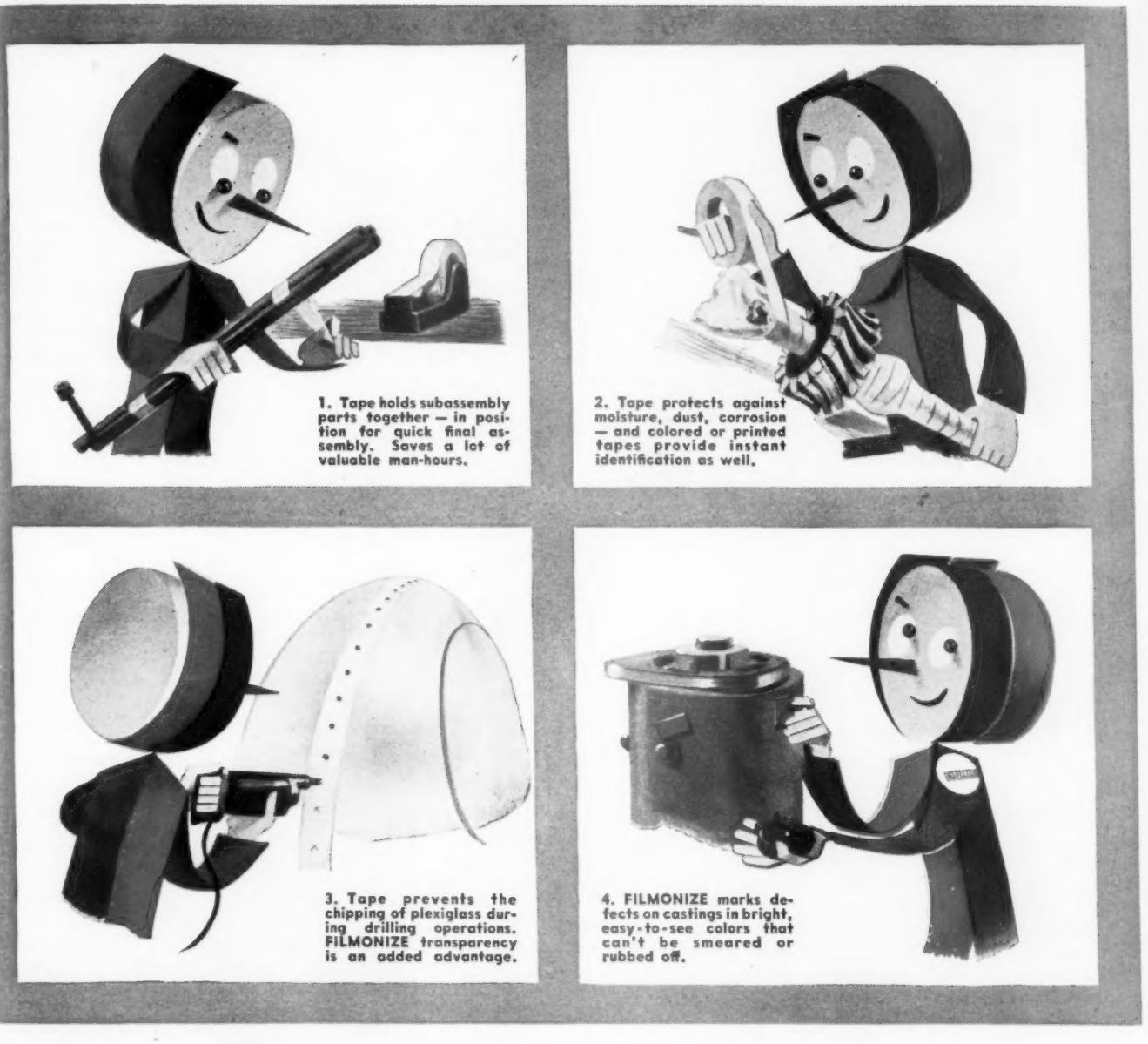
Benefits of the Plan

It will be seen from this review of the present system that divisional organization does not mean decentralization, even though a considerable proportion of the buying has been delegated away from the central purchasing department to Works Buyers, closer to the operating level. On the contrary, control has been strengthened and performance improved as the organization plan is more closely adapted to present-day company conditions.

One of the major benefits has been the elimination of routine paper work in the purchasing department. Hundreds of items have been specifically delegated to the Works Buyers in seventeen plants as their responsibility. In terms of paper work, that represents several thousand requisitions monthly, formerly processed in the purchasing department but now handled at the plants —usually more expeditiously. The relief from this source alone will enable the Chicago buyers to do a better job in getting around to their suppliers, learning more about materials at first hand, developing better contacts and trade relationships. It is reflected in the fact that many more items than previously have been reduced to a contract basis. That means more advantageous procurement, and in turn it simplifies the responsibility of Works Buyer, who can place their orders directly against such contract agreements.

Works Superintendents have welcomed the plan because it affords them a closer staff relationship with the buying operation and gives them better control over local conditions and individual plant requirements.

It is conceded that the real test of this organization and operating plan will come in the post-war period, under the pressure of new production and competitive problems. But the experience of a year and a half indicates that the foundation has been securely laid, and that the divisional type of organization is well adapted to this company's needs, without sacrificing any of the advantages which strict functional centralization has attained in the past.



Tape up all your troubles

More and more factory bosses are saving time, cutting costs—by taping up those *!!:?x*! production bottlenecks with FILMONIZE Self-Sealing Tapes. Are you wise to FILMONIZE?

It's the tape with no "curl back"—no tangle—no waste. It's the tape that *stands up*—on or off the roll—under conditions that lots of tapes just can't take.

Ask your distributor about FILMONIZE. Let him tell you the hundred-and-one different uses for it. See the whole FILMONIZE line: Transparent Tapes, Colored and Multi-Colored Tapes, Printed Tapes, Riveting Tapes, Identifying Tapes, Splicing Tapes, Acetate Fibre Tapes, Metal Tapes, Specialty Tapes, Packaging Tapes. All in widths of ½" to 18".

P. S.—*If yours is an unusual problem, we'll put a tape engineer right on it. Just drop us a line.*

Filmonize
REG. U. S. PAT. OFF.
SELF-SEALING TAPES

INTERNATIONAL PLASTIC CORPORATION
Morristown **New Jersey**



IF IT'S A BETTER PRODUCT GIRAFFE-TER . . .



(Can you name all the plastic parts of this "giraffe"? See chart below.)

Please look closely at this giraffe.

He's a lot more practical and useful than most giraffes. The artist put him together out of nine different plastic items all made by Continental's very busy Plastics Division.

His body is a smart-looking phenolic liquid-dispenser; his neck, two phenolic tractor handles. His head is a handle for an air power drill made of cellulose acetate butyrate, while his hoofs are trim compression-made switch-latches.

These items are just a mere handful of the surprising variety of useful plastic products that Continental makes for well-known industrial concerns — plane parts, cams and cogs, impellers and insulators—all of them the result of Continental combining years of experience with greatly increased production facilities and resources. Such a combination means we can bring to bear on your problems an unusual background of knowledge and experience to help you develop better products.

(a) Liquid-dispenser—compression; (b) Tractor handle—compression; (c) Switch-latch—compression; (d) Water-pump impeller—compression; (e) Handle—compression; (f) Molding—extrusion; (g) Pot handle—compression; (h) Knob—compression; (i) Handle for air power drill—injection.

Tune in: "REPORT TO THE NATION" every Sunday over coast-to-coast CBS network

CONTINENTAL PLASTICS DIVISION

CAN COMPANY, INC.

HEADQUARTERS: Cambridge, Ohio

Sales Representatives in all Principal Cities

COMPRESSION • INJECTION • EXTRUSION
SHEET FORMING • LAMINATION

Other Continental Products: Metal Containers • Fibre Drums • Paper Containers • Paper Cups • Plastic Products • Crown Caps and Cork Products • Machinery and Equipment.

Buying for the Movies

(*Continued from page* 95)

cated above, these entries are numerous. The specialized knowledge accumulated from years of experience by the key persons in this department is well nigh irreplaceable, except possibly by those who have been doing the same type of work for a similar company. A well experienced purchasing agent from the ordinary industrial company might question some of the unorthodox routine described above, but if he were suddenly faced with comparable demands for procurement service, he would find it pretty tough and slow-going for a long while.

* * *

Annual Meeting of N. A. P. A.

(*Continued from page* 80)

esteem and appreciation, herewith awards the J. Shipman Gold Medal for 1945 to Stuart F. Heinritz, whose utter sincerity, complete unselfishness, and unrelenting labors for the improvement of purchasing technique and extension of the effective service of purchasing agents richly qualify him as the recipient of this, the highest award it is within our power to confer.

The Shipman Award Committee for 1945 consisted of R. F. Stiles of the Stewart-Warner Corporation, Chicago, Mervyn C. Nystrom of the Southern Pacific Company, San Francisco, and W. G. Thomas of the Duke Power Company, Charlotte, N. C.

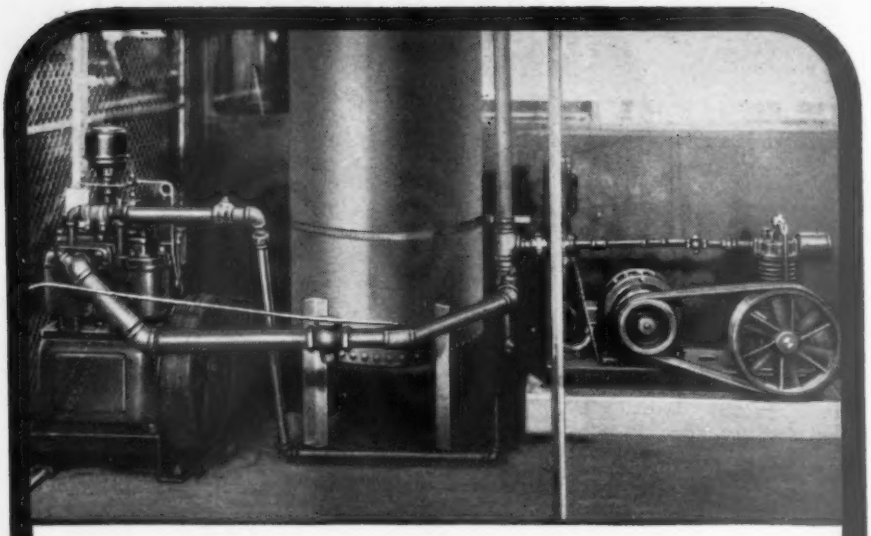
After the presentation and acceptance of the medal. President Swanton spoke of the loyal and effective work of his associates on the Executive Committee throughout a difficult wartime year, and expressed his appreciation of this cooperation. On behalf of the Association, he then presented each member of the retiring committee with a framed certificate attesting to their service. He introduced Charles L. Sheldon as his successor in the presidency of the Association, and turned over the gavel.

Sheldon Takes Over

As his first act of office, President Sheldon recognized Ben Newbery, Past President, who paid a tribute to Bob Swanton's leadership and to

(*Continued on page* 308)





At Parker Pen Factory

CURTIS COMPRESSORS

Deliver 60 cfm of Air at Low Cost of only 12c per hour

USING two Curtis Air Compressors, the Parker Pen Company factory at Janesville, Wisconsin, uses air for a variety of jobs in their factory.

Air is being used to replace noisy blowers on gas furnaces, to operate air valves on various special machines — such as operating a high speed internal grinder and operating ejectors to clear work from 20 punch presses, blowing dust out of dies, and for cleaning up around automatic screw machines.

Compressed air also controls the "dry pipe" sprinkler system, eliminating the possibility of water lines freezing.

D. A. McLaughlin, Supt., states that "the power cost on our larger Curtis Compressor does not average over 36c a day for three hours' operation, *making our cost for air remarkably low*. The operation of these Compressors, with no repairs and only ordinary oiling and cleaning — has been so satisfactory that we are highly pleased with Curtis Compressed Air Service."

Here is just another example of the dependable, efficient service you can expect from Curtis Air Compressors . . . the result of such experienced design features as:

TAPERED ROLLER BEARINGS — CARBON-FREE DISC VALVES
CENTRO-RING LUBRICATION — AUTOMATIC PRESSURE UNLOADER
PRECISION CONSTRUCTION THROUGHOUT

Write for Form C-4-C

CURTIS
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FOR VICTORY BUY UNITED STATES WAR BONDS AND STAMPS

CURTIS PNEUMATIC MACHINERY DIVISION F-432
of Curtis Manufacturing Company
1908 Kienlen Avenue, St. Louis 20, Missouri

Please send me a copy of Form C-4-C.

Name.....
Firm.....
Street.....
City.....Zone.....State.....

Annual Meeting of N. A. P. A.

(*Continued from page* 307)

his unremitting efforts which had carried the Association through a highly successful year. As a token of appreciation for this service, he presented Mr. Swanton with an engrossed testimonial.

Mr. Sheldon welcomed the members of the incoming Executive Committee to their new responsibilities. He commended to them the example and record of their predecessors in office, and expressed his confidence in them for another successful year ahead. For himself, he affirmed his intention to "get around, and spend a lot of time on Association work." Thus the new administration was off to a good start on the program for 1945-1946.

The thirtieth annual meeting of N. A. P. A. then adjourned.

* * *

Report on Conservation

(*Continued from page* 97)

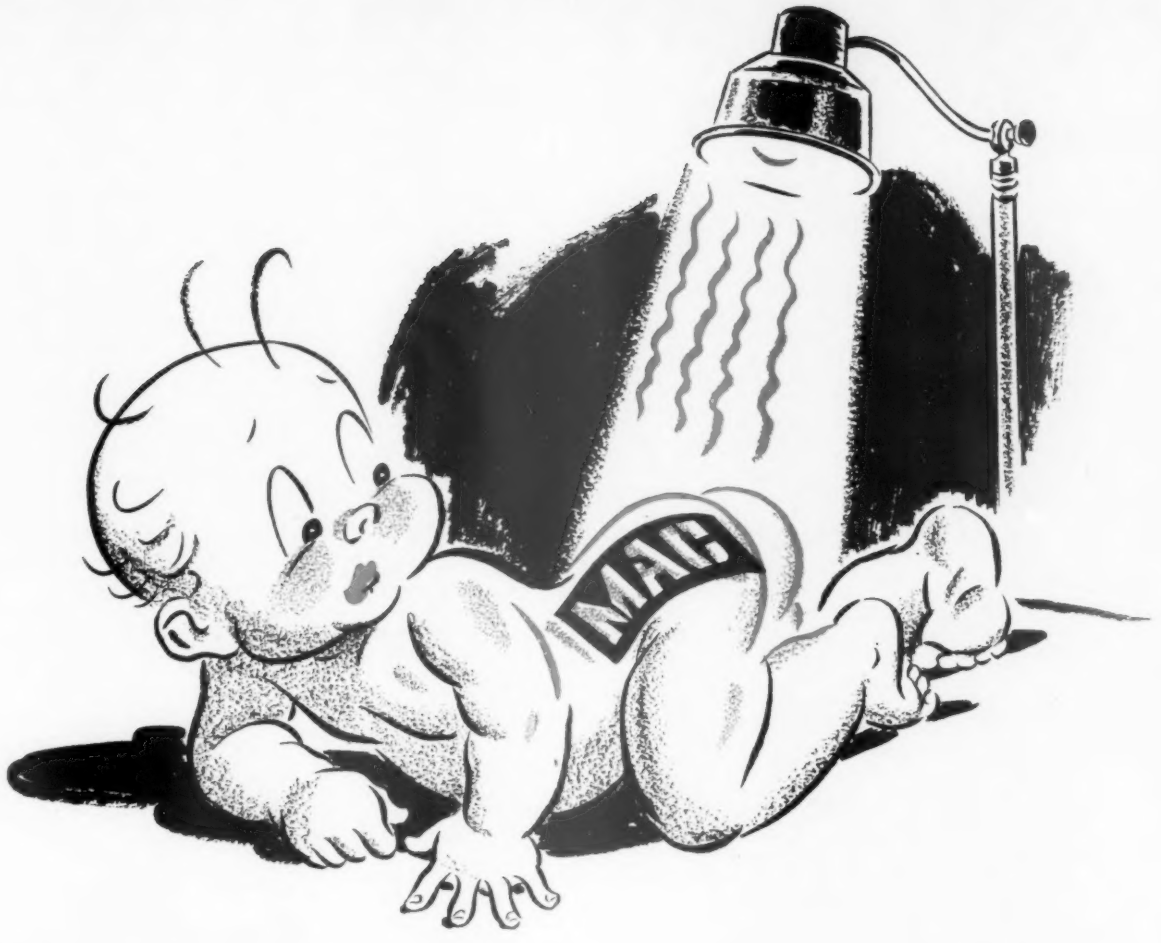
mands and, in the main, for which it is willing to pay.

"Our forms program is led by a committee whose duty it is to review, revise and standardize forms and administrative material. Many forms have been eliminated and others revised, resulting in large savings of paper. By redesigning a single form, recently, over 3,000,000 sheets of letter-size stock were saved.

"A summary of the purchases of paper stocks for the past four years best tells the story: 1) Fiscal year ending June 30, 1942, we purchased 13,500,000 stock size sheets; (2) 1943—9,700,000 sheets; (3) 1944—7,700,000 sheets; and (4) Estimated for 1945, 6,000,000 sheets. This reduction will represent approximately 12 carloads of paper annually."

J. W. Phillips, reporting on the conservation activities of the Office of Inter-American Affairs, said that by the use of a return-post card form, one of the department's mailing lists was reduced 60%. Other lists are also being screened by use of return-postal form. He said that the average saving was 45%. Concluding his report he stated that "a very considerable saving in our funds can be realized through discontinuing varityping in our publica-

(*Continued on page* 310)



PROTECTING...

an important investment

Whether your "Baby" is a line of radios, refrigerators, tractors, or even watermelons . . . you have an "important investment" to protect.

Just as modern hospitals assure positive identification by applying baby's initials with stencil and ultra-violet . . . so, too, market-wise manufacturers rely on Palm Brothers Decals for dynamic and positive product identification.

Colorful Palm Brothers Decals can be applied quickly to any commercial surface. Easy to use, economical to buy, they are your guaranteed marks of distinction.



Write today for your free copy of new Bulletin No. 921.

THE PALM BROTHERS *Decalcomania Co.*

CINCINNATI . . 12 . . . OHIO . . U. S. A.

The Time-Tested way to head off Rust Damage



Twenty-six years ago NO-OX-ID was first formulated to prevent corrosion on ball bearings. Atmospheric condensation or the touch of a finger is ruinous to such highly polished surfaces. To stop this devastating loss and prevent rejects, many manufacturers

Use No-Ox-Id

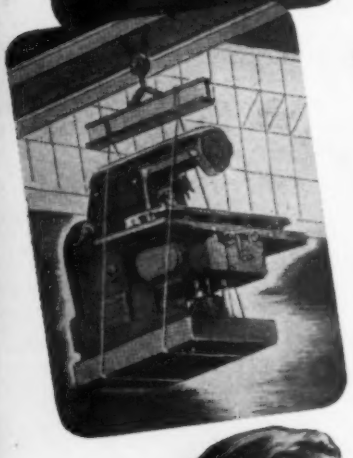
HANDLING IN PLANT

Many parts should be sprayed with NO-OX-ID to prevent rust while standing over night, or in transit from one department to another. There's a light consistency for this purpose which does not interfere with inspection. Other consistencies provide an oil type coating of excellent lubricating qualities . . . still others set to dry, wax-like finish.



PACKING and SHIPPING

Entire unit may be coated with NO-OX-ID, then wrapped with NO-OX-IDized Wrapper, which conforms readily to irregular surfaces. Cartons are then packed in shipping cases which are lined with NO-OX-IDized bag liners and then sealed with NO-OX-ID Sealing Compound. This forms an impregnable water and vapor barrier shipping package.



LONG TIME STORAGE

Machinery and tools will not have to be smeared with a sticky grease when placed in long time storage after this war. They can be protected with NO-OX-ID which adheres to all surfaces, yet can be removed easily and quickly when desired.

Purchasing agents, tool crib and store room men, and shipping room foremen are invited to put their rust prevention problems up to us. We can help you.



The ORIGINAL RUST PREVENTIVE

DEARBORN CHEMICAL COMPANY
Dept. AA, 310 S. Michigan Ave., Chicago 4, Illinois

Report on Conservation

(*Continued from page* 308)

tions and preparing the typed copy in formal form for multilithing" according to study being made.

Constant Vigilance

Gilbert B. Fedak, conservator, Foreign Economic Administration stated that proper utilization of space, telephones, furniture, equipment supplies, paper and other facilities continues to receive constant attention. In one instance telephone facilities formerly serving 2970 employes were made to accommodate 3683 employes, and actually resulted in more efficient and speedier conduct of the agency's activities.

Furniture and equipment that are no longer required are channeled back to stock. In January of this year, 45 desks, 68 chairs, 20 typewriters, and 18 tables were among the items made available for other offices. The returns have averaged $8,000 in value per month. By the elimination of 34 office supply cabinets, supplies returned to the central stock room have averaged $200 in value per month.

Effective forms standardization and control has been established which "has resulted in a cut from 1240 forms in use by our former predecessor agencies in May 1944, down to 550 in April, 1945, with 200 of these still under review."

Reports were also made by other Conservators, all being of a general tenor that the departments and agencies represented were giving diligent consideration to conservation.

* * *

Reconversion and Postwar Responsibilities

(*Continued from page* 84)

restrictions in specifications which tend automatically to limit competition. Here again, the purchasing department should be so well posted on developments and available commodities that it will be able to make outstanding contributions in the writing of these specifications.

In this connection, the purchasing department should take responsibility for the adoption of standards and standardization of purchases. Whether the trend of governmental research and regulation after the war will be a continuation of simplification and standardization is un-

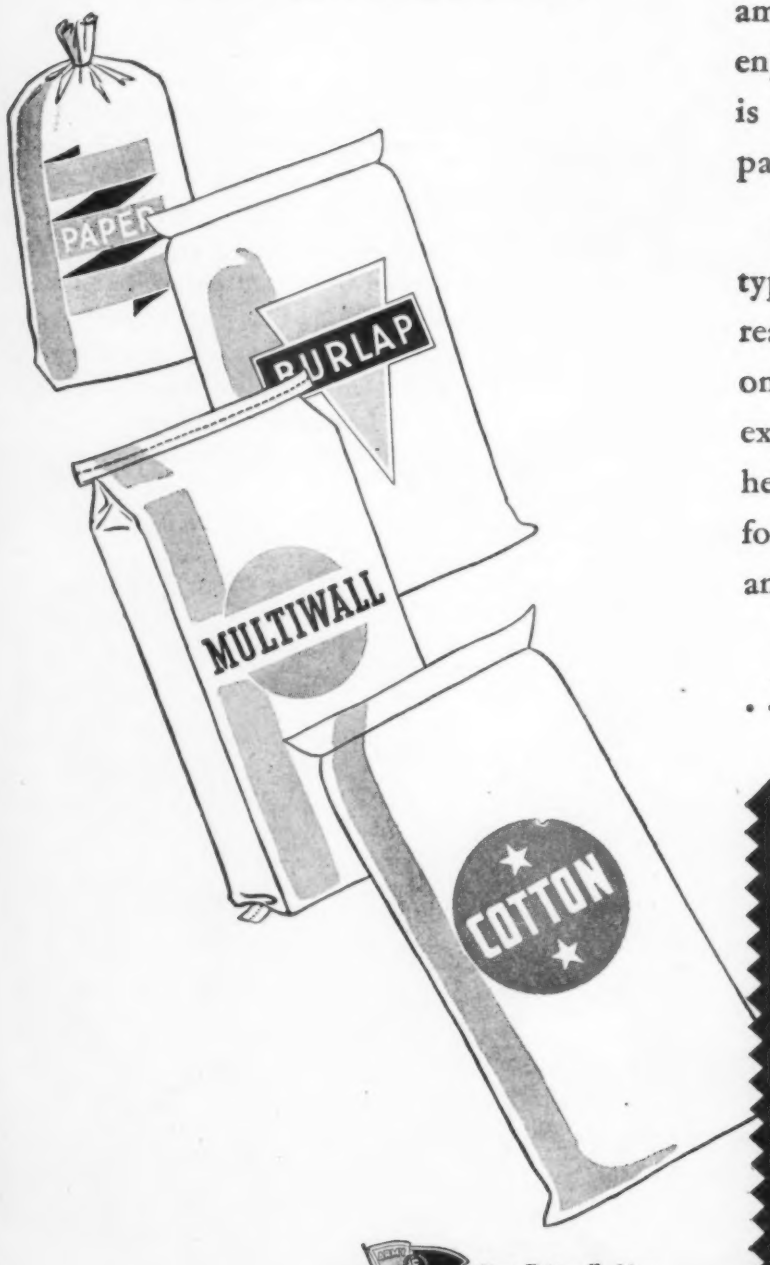
(*Continued on page* 314)


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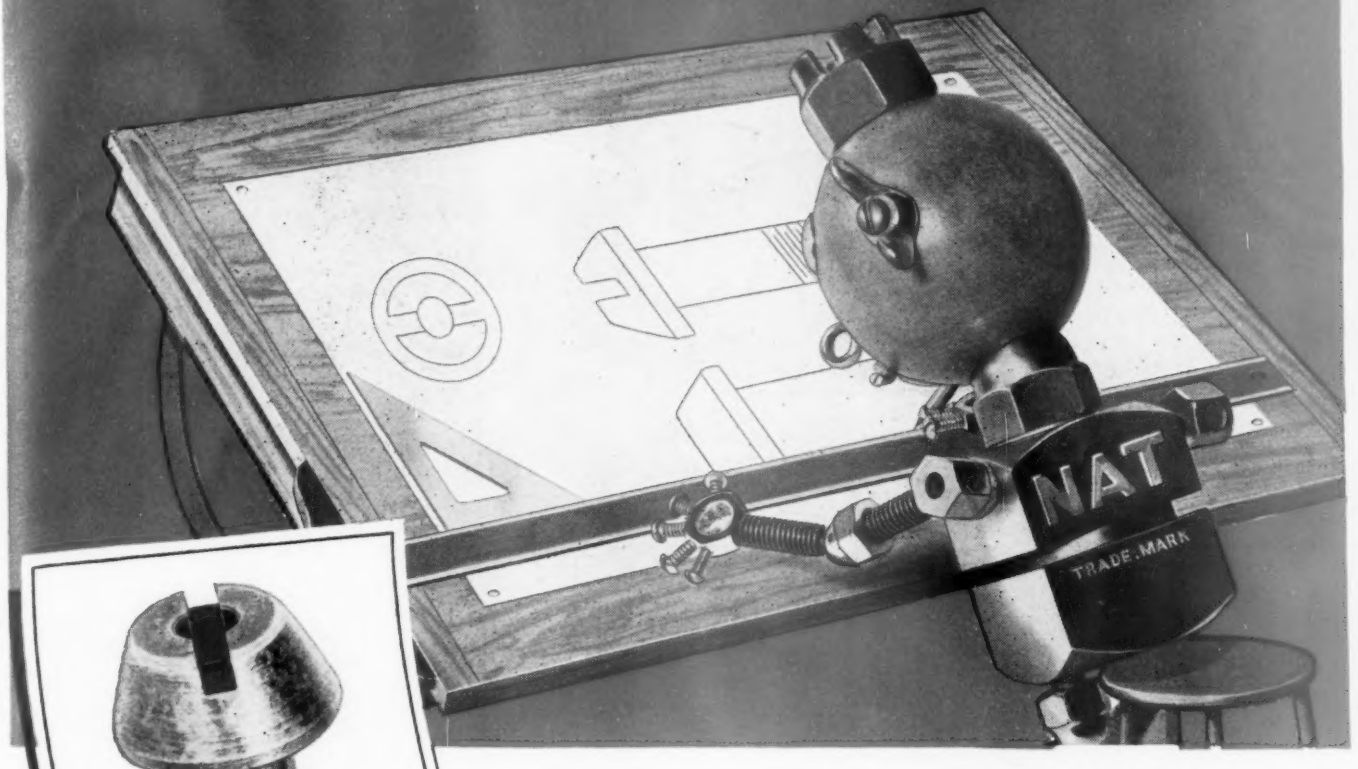
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Reconversion and Postwar Responsibilities

(*Continued from page* 310)

certain, although much has been accomplished during the war in the interest of increased production. A responsibility certainly rests on the purchasing department to press a program of standardization of the items it purchases, removing from the picture all customs and prejudices surrounding special items purchased that are not entirely necessary. Co-operation of other departments must be enlisted to change requirements to standard articles wherever possible.

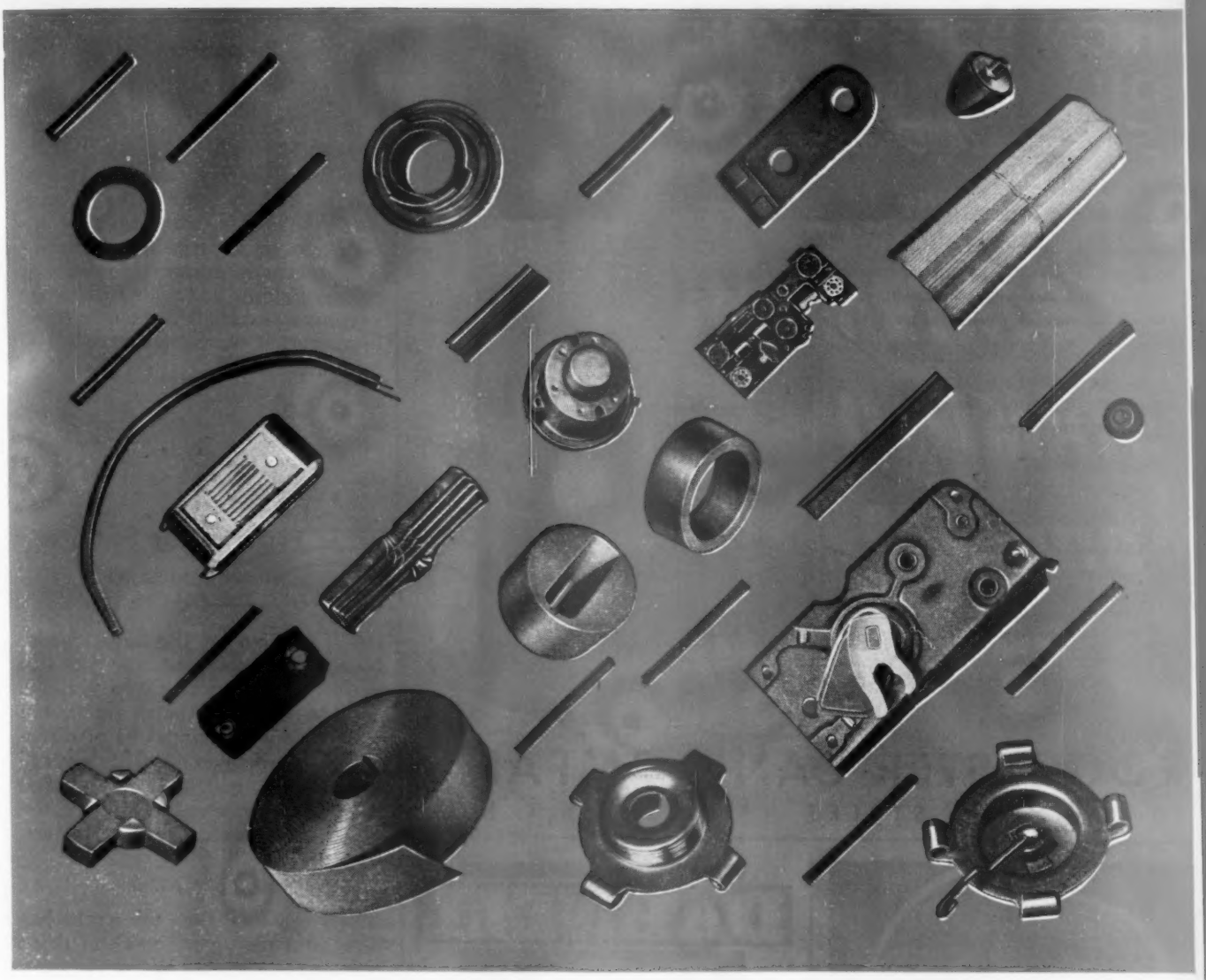
Education

A responsibility exists on the part of the purchasing department to keep its personnel informed of goals and policies. A group that is acquainted with the reasons behind the necessity of certain policies, and how it is proposed to attain the ends to these policies will be considerably more co-operative and satisfied. It is suggested that outlines of postwar and reconversion plans be passed along, verbally or otherwise, to all members of the purchasing department to enlist their enthusiasm and support. Education of personnel to enable them to better perform their duties is always a responsibility, and plans should be made to accelerate such a program to increase the efficiency of all workers in preparation for added responsibilities and duties.

In conclusion, emphasis should be placed on the need for efficient organization of the purchasing department in anticipation of, and preparation for the added and new responsibilities with which it will be faced. By this means, the purchasing department will receive attention from management as a management function. Management must be made to realize that the purchasing department cannot operate to best advantage unless it is properly informed of policies and programs, and unless it assists in formulating such policies and programs. If an efficient organization is available, the natural development will be for management to rely on the purchasing department for those responsibilities that are rightfully best handled there.

Despite the commendable accomplishments of purchasing departments during the war, the tendency has been toward a departure from centralized purchasing to some de-

(*Continued on page* 316)



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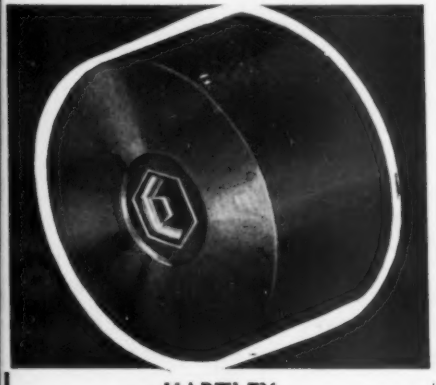
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Reconversion and Postwar Responsibilities

(*Continued from page* 314)

gree. Due to the increase in the functions and in the work load placed on the purchasing department, other departments have assisted in or absorbed some duties. The return of former functions or responsibilities and added new ones present a real challenge to improved organization of the purchasing department.

* * *

Pop Holds the Fort

(*Continued from page* 99)

me in this job for the same reason. Now there's only one way you can get me out, and that's to fire me. You have the power to do it, but just what will your board of directors say if you exercise that power?" Young J. B. coughed and blinked; he knew how Pop fitted with the board. So he changed the subject.

Ahead of the Game

"By the way, Pop, the works has been after me for six more of those big drill presses. We've let the thing go too long and now we're up against it. What can you do?"

"Nothing," , said Pop calmly lighting another cigar.

"Whaddoyou mean?" rasped J. B.

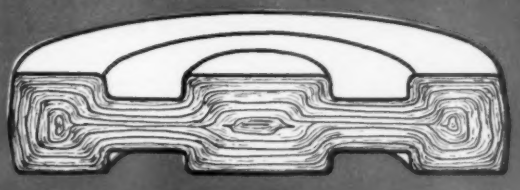
"Just that. But if you want to take a stroll down to the receiving platform you'll see them unloading six drill presses of the latest vintage. I knew this was coming long ago, ordered the presses on my own hook and posted five hundred bucks of my own money to hold them for our order. You have been staving off Billy from putting in a requisition for these presses, when you know, as well as the rest of us, that we should be up against it without them. So I got busy. When you see five hundred bucks on my expense account you take it off the bill for the presses and fork it over to me."

"Well, I'll be damned," said young J. B.

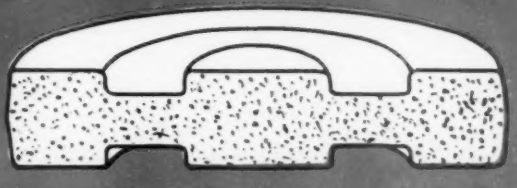
Nothing more has been said about turning Pop Anderson out to pasture.

And there won't be.

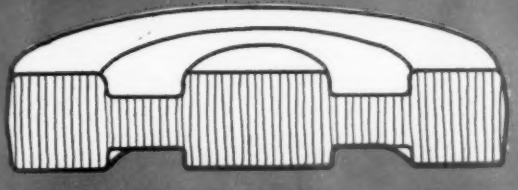
Why FORGING GIVES METALS THEIR ULTIMATE STRENGTH and TOUGHNESS



In this forged gear blank, the grain flow follows the gear contour and is intensified at points of greatest stress.



In a cast gear blank there is no grain flow.



In a gear blank machined from bar stock, the grain flow is in one direction and is interrupted by machining.

The sketches portray the fundamental character of forgings as compared with parts produced by other methods. Only in forgings will you find the tough fibrous grain structure, with the grain flow advantageously directed throughout the piece, and the fibre structure concentrated at the points of greatest shock and stress.

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Purchasing Men Evaluate Their Postwar Job

(*Continued from page 87*)

ent. It is emphasized in several papers that this process should be the personal concern of the department head, rather than leaving it to the decisions of a personnel department, and that it should not be done on any arbitrary basis such as the ratio to sales volume, but on the basis of careful job analysis and a review of departmental functions under the new set of conditions.

In part, it will be determined by a contraction of war-extended activities such as priorities and expediting, which should taper off as controls are released and delivery conditions improve. As an offset to this, there are added responsibilities in other directions which ought to be a permanent part of the procurement function, such as materials control, inventory control, and the like.

Wartime procurement has developed a new concept of purchasing, and has indicated very strongly the advantage of a comprehensive Materials Department, in which the buying division has a key position, coordinated with the other functions affecting control and handling of purchased materials. The logical place for this, in a compact organization, is the purchasing department.

Materials Department

One detailed suggestion for postwar organization is a Materials Department embracing eight divisions, which may or may not be currently included within the scope of purchasing as now constituted. These divisions are: materials control, standards, purchasing, transportation, receiving, inspection, stores, and salvage. This would provide a complete and coordinated procurement responsibility, right up to the point where production takes over.

Another suggestion would provide for three staff functions allied to the buying operation, coming under the purchasing agent's supervision. One of these is a liaison man maintaining contacts with engineering, manufacturing, cost, stores and accounting departments; a man in charge of inventory control; and one in charge of salvage. In a small company, the first two functions might be combined. A third suggestion is that a technical consultant be attached to the purchasing department, assisting the buyers, maintaining liaison with

(*Continued on page 322*)

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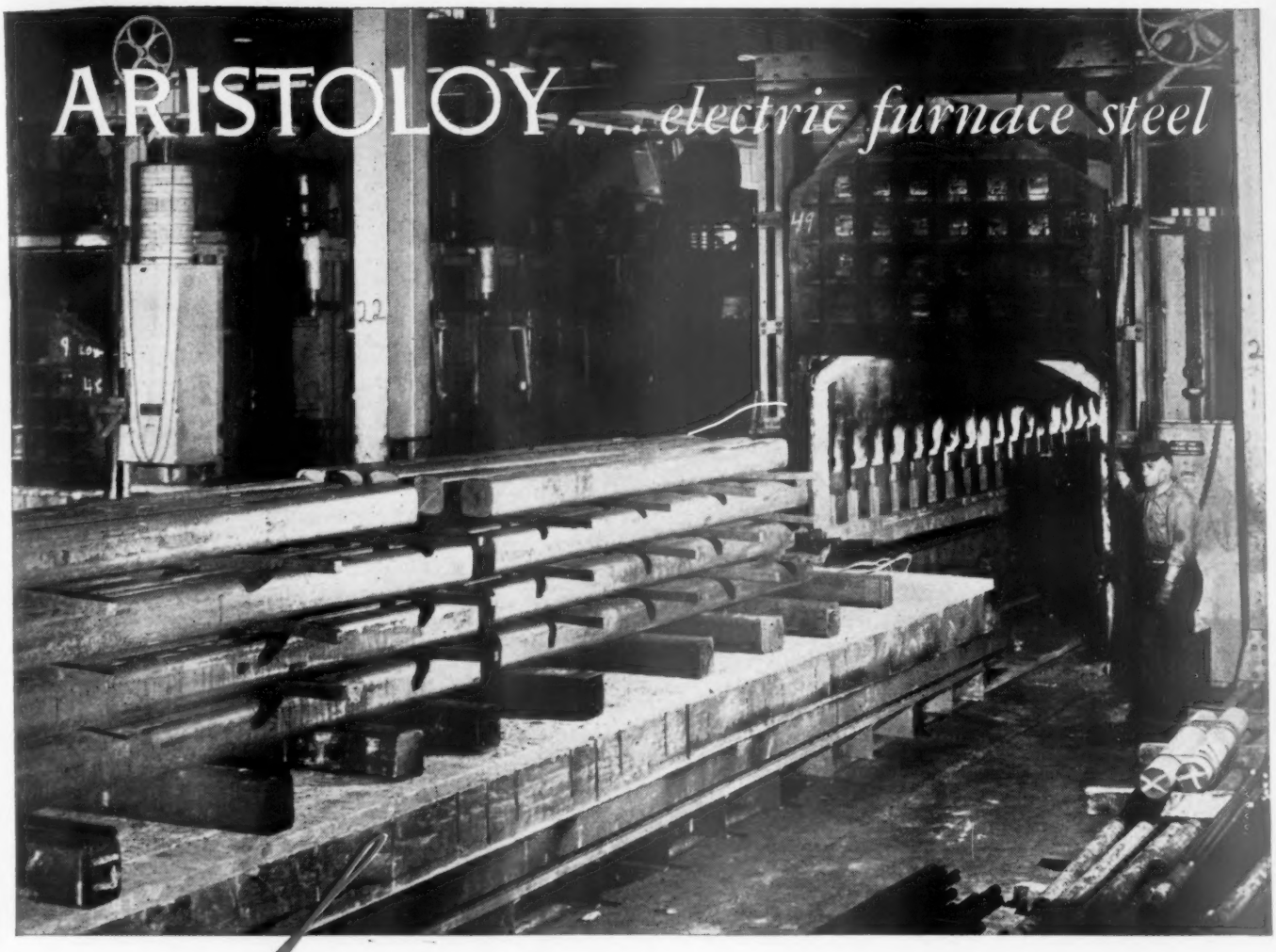
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Purchasing Men Evaluate Their Postwar Job

(*Continued from page* 318)

plant and engineering departments, and with the special responsibility of establishing standards and exploring the possibilities of new materials. Several of the papers proposed that the handling of surplus be delegated to a special person or division in the purchasing department to insure orderly and efficient movement of such items.

Reorganization Period

In any event, the period ahead gives the purchasing officer an opportunity to clean house, reorganizing the departmental staff for peacetime efficiency, and taking care to retain those key men and women in the department whose experience and performance in the difficult wartime years have qualified them to serve as the nucleus for an efficient purchasing group. Emphasis is placed in many of the papers on the necessity of educational or training work, especially for those whose whole purchasing experience has been under the abnormal conditions of wartime and who have not had the opportunity to know and apply the tested fundamental principles of normal purchasing practice. It is not sufficient for the department head alone to be aware of objectives and policies; the entire staff must be indoctrinated and trained to work as a coordinated unit.

If purchasing is to give maximum service to the company, and is to retain its status in the organization, the entire group should be built up and maintained on a high personnel plane. Economical departmental administration should not be sought on a price basis, but through greater efficiency and strengthening the calibre of personnel.

The responsibility for reabsorbing the men and women who left the purchasing department for national service, is universally recognized.

Public Responsibilities

A final point, discussed in several of the papers, concerns the purchasing department's responsibilities beyond the activities of the individual company, in the public and national interest. It is pretty well accepted today that the welfare of the nation is at stake in the welfare of industry. That poses a dual responsibility for every business man. It means that

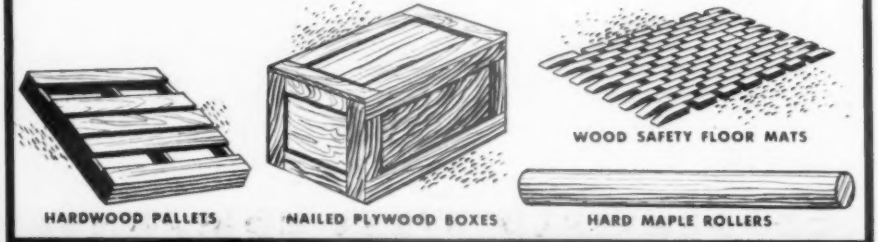
(*Continued on page* 324)

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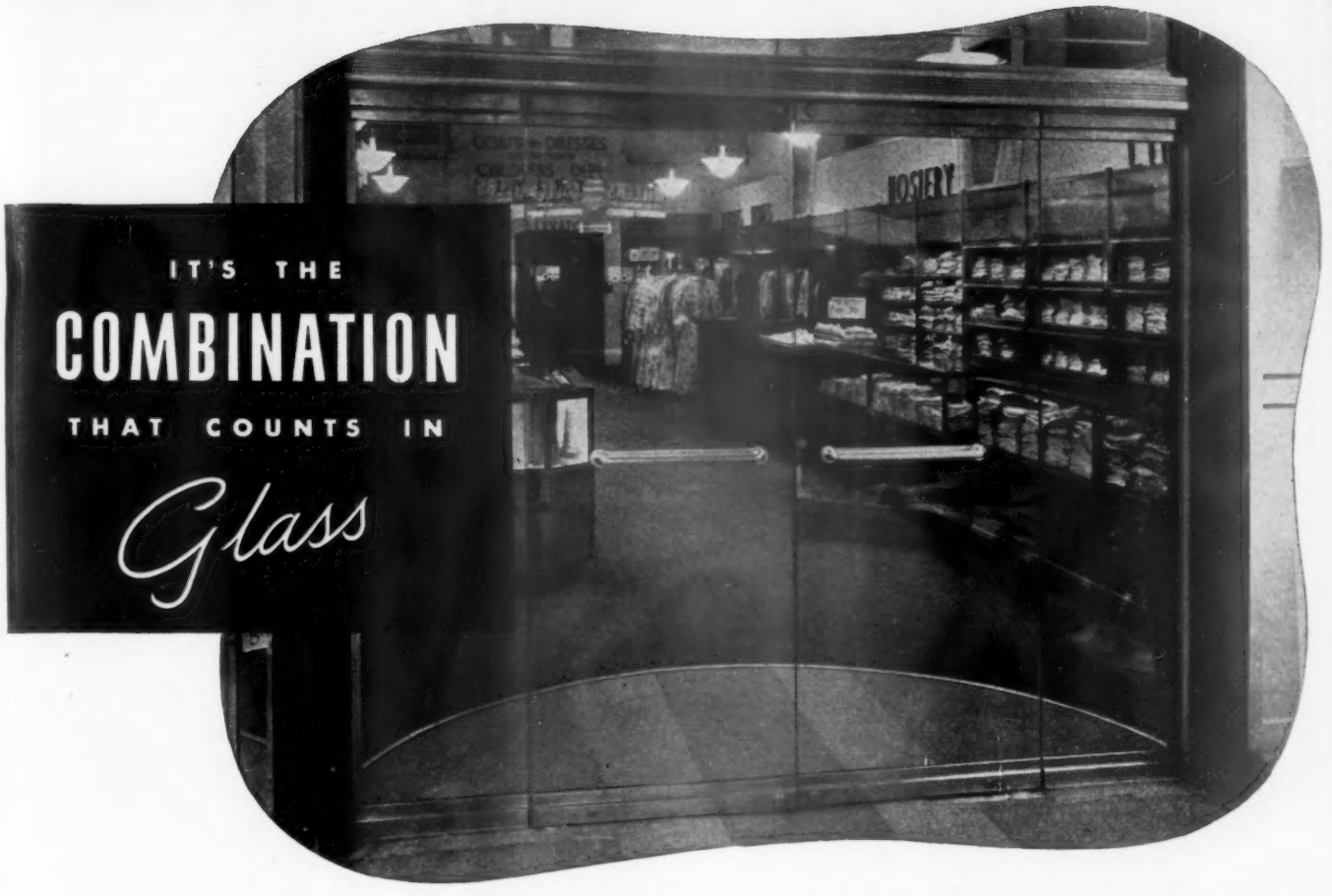
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Purchasing Men Evaluate Their Postwar Job

(*Continued from page 322*)

industry's planning, and purchase planning (as, for example, with respect to war surplus materials), should contribute to the solution of national problems, avoiding the taint of selfish opportunism. The same whole-hearted cooperation that has played such an important part in the winning of the war must be applied to the economic problems of the postwar period.

It means also that the purchasing agent should have a keen and active personal interest in public affairs and policies as they affect economic health, peacetime production and employment, and distribution. Legislation on matters of taxation, foreign trade, railroad freight rates, and the like, affect purchasing just as directly as limitation orders and other emergency wartime controls—and far more permanently. In our democracy we must depend on an intelligent, well informed, and articulate public opinion to keep such policies sound. Purchasing men can make a real contribution toward this end.

* * *

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Aluminum and its alloys can now be easily, quickly and economically prepared for painting and lacquering with excellent adhesion and corrosion resistance qualities, according to the Technical Processes Division of Colonial Alloys Co., Philadelphia, Pa., by application of a surface preparation that can be made either in the shop as a hot immersion process, or in the field as a cold spray, brush or immersion.

The hot immersion method consists of dipping the work for from three (3) to thirty (30) minutes in a hot chemical solution, rinsing and drying, after which it is ready for painting or lacquering.

The cold spray, brush or immersion method consists of applying a chemical solution (at room temperature) by spray, brush or immersion, allowing from 15 seconds to 1 minute for setting, then rinsing the surfaces free of the applied solution. The work is then dried and is ready for painting or lacquering.

Both methods are excellent for paint and lacquer adhesion, and should in many cases replace the sand-blasting or anodizing of aluminum surfaces, it is claimed. The hot immersion method is better for increasing the corrosion resistance of the aluminum but the cold method also enhances the corrosion resistance.

The cold method is of special interest since it can be applied to aluminum already assembled in the field or "in place" such as store fronts, escalators, etc.

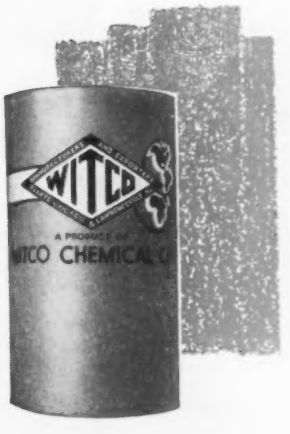


Formulated to conform to U. S. ARMY ORDNANCE SPECIFICATION AXS-1015, Rev. 1

★ A light-colored, homogenous dipping wax that is non-corrosive to steel, aluminum, or copper. It is transparent, so that the package labels and part numbers can easily be read through the coating.

Witco Hamp Wax #450 sets in less than two minutes after dipping, to form a continuous, non-hygroscopic coating that will not soften at temperatures below 145 F nor flake at −10 F or above. It gives ideal protection to packages for overseas shipment.

Ask for details of this and other Witco Protective Materials described in new bulletin just off the press. A copy will be sent gladly.



Packed in 90 lb fibre cartons

OTHER WITCO PROTECTIVE MATERIALS ★ **Witco Mastic #224 Box Coating** ★ **Witco Mastic #250 Bag Sealer** ★ **Witco Rust Inhibitor #673**

WITCO CHEMICAL COMPANY

435 N. MICHIGAN AVE., CHICAGO 11, ILL. ★ EST. 1920 ★ 7338 WOODWARD AVE., DETROIT 2, MICH.

FOR SPEED STRENGTH ECONOMY

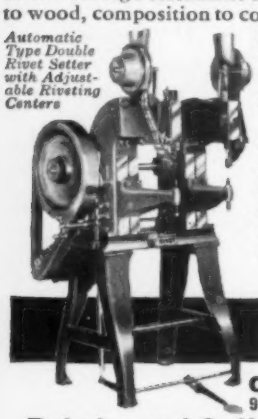
FASTEN THAT NEW PRODUCT

WITH Chicago AUTOMATIC RIVETING

Success or failure of your new product in post war competition may depend on your speed and cost of production. Chicago Automatic Riveting will fasten it faster, at low unit cost. From 1 to 4 tubular or split rivets are fed, inserted and clinched in the split second required to release a Chicago foot pedal. Several Chicago models are quickly adjusted to handle different sizes of rivets. Chicago Automatic Riveters fasten wood to wood, composition to composition, fabric to fabric, metal to metal, leather to leather, or any combination of these materials. They clinch grommets and eyelets and insert drive screws.



Automatic Type Single Rivet Setter



Automatic Type Double Rivet Setter with Adjustable Riveting Centers

FREE FASTENING ANALYSIS

Chicago Rivet engineers will gladly analyze your fastening problem. Actual production rates can be set from the report they give you. No charge or obligation. Just send sample assembly or blue print.

Chicago Rivet

CHICAGO RIVET & MACHINE CO.
9607 W. Jackson Blvd., Bellwood, Ill. (Chicago Suburb)

Tubular and Split Rivets in All Rivet Metals

GAS FROM TREES

IF AUTOMOTIVE gasoline becomes scarce or too high in price, it may be that the among the usual exchange of banalities among motorists will be "How many miles do you get per pound", referring to motors operating on gas made from charcoal, anthracite or coke as an alternate fuel for gasoline motors.



"Alternate fuels" for motor vehicles of all kinds have been used in Europe for years. However, it is not very well known that thousands of these vehicles are powered by units known as Gasogenes made in the United States. The company making them is the M & R Products, Inc., Brooklyn, New York. Not only are Gasogenes made for road vehicles, but they are also manufactured for stationary and marine engines as well as charcoal kilns for carbonizing all varieties of wood and various agricultural waste products, including coconut shells.

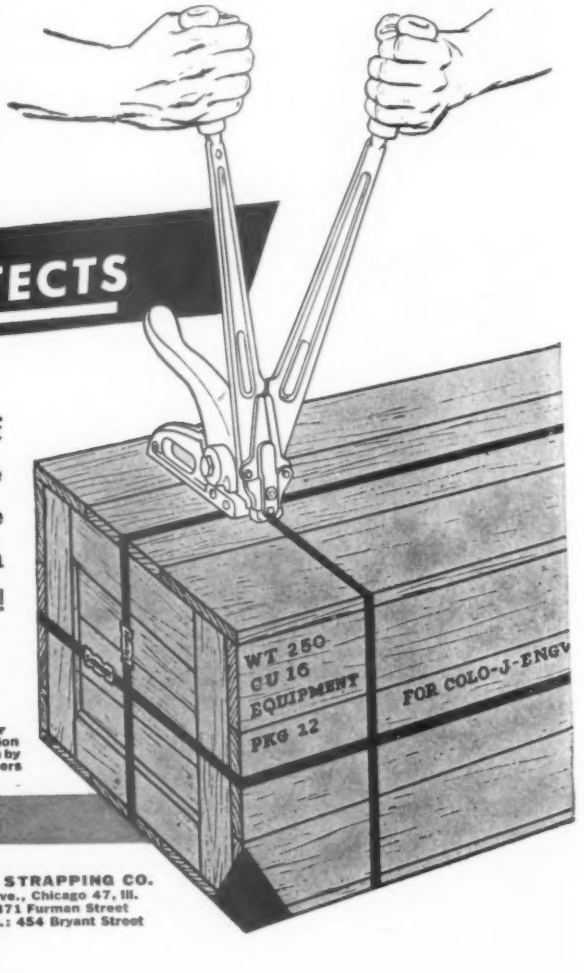
(*Continued on page* 328)

IMPORTANT

BECAUSE IT PROTECTS

Industry is meeting the challenge of America's mass production schedule . . . but production alone is of little value unless the material reaches its destination in UNDAMAGED, USABLE CONDITION!

Signode Steel Strapping Protects

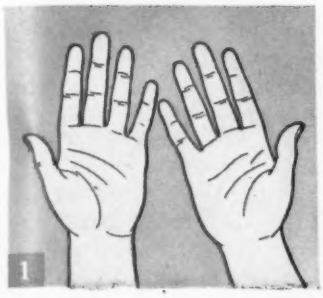


A white star renewal citation has been won by Signode workers

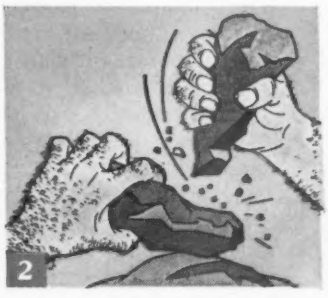
SIGNODE
STEEL STRAPPING CO.

SIGNODE STEEL STRAPPING CO.
2602 N. Western Ave., Chicago 47, Ill.
Brooklyn, N. Y.: 371 Furman Street
San Francisco, Calif.: 454 Bryant Street

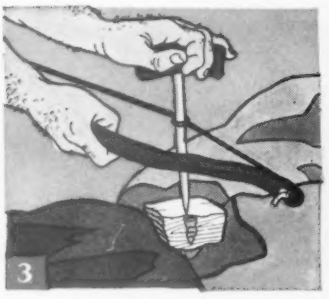
It started with the other hand



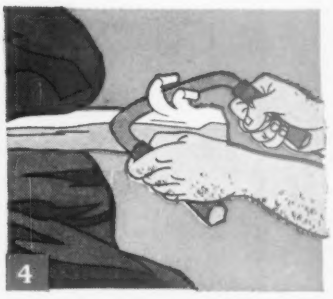
Right or left-handed, your *other* hand is a type of jig.



A jig is something to hold work while you're working on it.



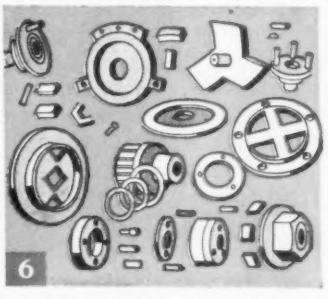
Notches in stones or logs left both hands free.



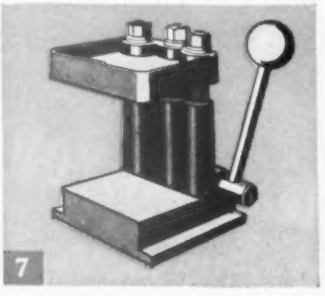
Two heavy stones once served as a sort of vise or jig.



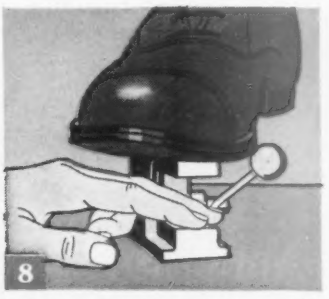
Modern adjustable jigs have two faults. Some slip, hurt people.



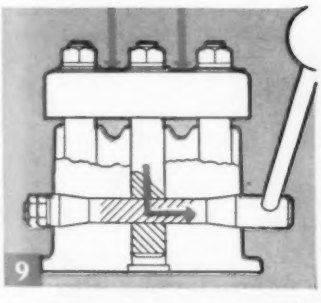
Locking mechanisms of others wear out fast or fail.



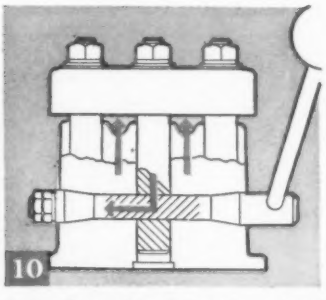
These problems were solved by Woodworth's CONE-LOK JIG.



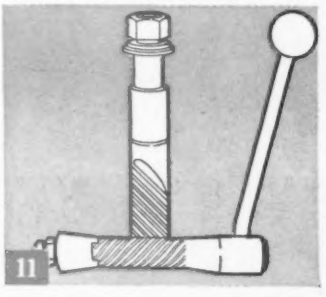
This amazing jig locks instantly. Can't slip. Protects workers.



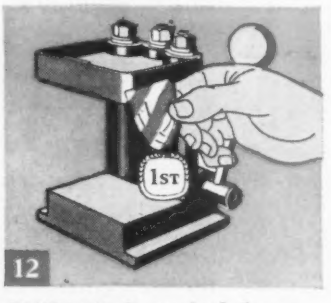
Force on top travels thru 45° gear to right. Left cone locks.



Force from below is transmitted to left . . . locks cone at right.



CONE-LOK JIG is simple. Three moving parts do the job.



CONE-LOK is praised by production men everywhere.

What Woodworth products mean to industry

THE contribution to mass production efficiency made by the CONE-LOK JIG is typical of all Woodworth products.

There is a reason for this.

Every Woodworth product must conform to the basic policy of this company . . . *to make only products which will benefit industry through increased production and reduced costs.*

This means that the great demand for Woodworth Tools and Gages will be continuing, especially in view of the coming battle for postwar markets.

And it means that Woodworth engineers have been charged with the responsibility of searching constantly for new ways to speed up and lower the cost of production, in connection with Woodworth products of the future.

The constant growth and expansion of the N. A. Woodworth Company is due to strict adherence to these objectives.

ACCURACY YOU W CAN TRUST

WOODWORTH

N. A. WOODWORTH CO., SALES DIVISION, 1300 E. NINE MILE ROAD, DETROIT 20, MICHIGAN

PRECISION GAGES

PRECISION MACHINED PARTS

PRECISION TOOLS

(*Continued from page 326*)

The accompanying illustration shows a truck equipped with one of these units. The unit consists of a hopper for carrying the charcoal; a reaction chamber in which the charcoal is burned to carbon monoxide, a carburetor designed for mixing carbon-monoxide and air instead of gasoline and air, and the necessary piping and filters.

It is not necessary to alter the standard gasoline motor to operate on Gasogene gas. The generator unit and filters are bolted to the chassis; the carbo-charger or special carburetor is mounted in a suitable location on the motor. A change-over valve is installed on the intake manifold and the gasoline carburetor is mounted on this change-over valve. It is possible to run on either fuel by a single movement of a lever in the instrument panel.

Under average conditions, motors can be changed over from Gasogene to gasoline operations while in motion. It is estimated that one ton of charcoal will give approximately the same mileage as 160 to 180 gallons of gasoline. So far as cylinder wear is concerned, it is stated that the wear is comparable with gasoline. Nor is it necessary to use gasoline to start the motor. A hand or electric blower can be used to ignite the charcoal and start generating gas and the motor can be started directly on the gas in 1½ to 3 minutes after lighting the charcoal.

In answer to the question as to how far it is possible to travel on a generator full of charcoal, the company states that standard production models will operate from 75 to 100 miles without refueling, which can be done without stopping the motor. Larger fuel storage hoppers for increased mileage are available. The equip-

(*Continued on page 330*)



● Whether it's a vital machine part, a part for a game or toy, or a complete product in its own right . . . if it's made of wire, we solicit your inquiry. We can produce it in any quantity and any finish you desire.

Wire forms and light metal stampings are our business. Years of experience and fast, automatic machines mean precision—speed—and delivery as promised. Moreover, we're equipped to give you any permitted finish you desire.

What's your problem? Send us a sample, blueprint or drawing. No obligation, of course.

JESCHKE

WIRE AND SPECIALTY CO.

700 POSTON DRIVE
CRAWFORDSVILLE, INDIANA

Jeschke wire & SPECIALTY CO.

IF IT'S MADE OF WIRE WE CAN MAKE IT

Materials
PROCESSING
EQUIPMENT

Sifters, Crushers, Cutters, Dry and Liquid Mixers, Mills, Grinders, Pulverizers, Conveyor Systems, Complete Installations.

The handling equipment construction "know-how" of the Mercer Engineering Works, Inc., Clifton, N. J. . . . The more than 40 years processing equipment experience of Robinson Mfg. Co., Muncy, Pa. . . . All are embodied in and represented by

MERCER-ROBINSON, CO., INC.
30 CHURCH ST., NEW YORK 7, N. Y.

Materials
HANDLING
EQUIPMENT

Trailer Trucks (All Types) Wheel Tractor Cranes (3 to 7 ton) Fork Lift Trucks, Lift Platforms, Hoists, Live Skids, Wheels, Casters.



CLEVELAND
Top Quality
FASTENERS

The Cleveland Cap Screw Company
2933 EAST 79TH STREET • CLEVELAND 4, OHIO
Warehouses: Chicago, Philadelphia, New York, Los Angeles
Ask your Jobber for Cleveland Fasteners

MADE BY THE ORIGINATORS OF THE KAUFMAN PROCESS FOR GREATER STRENGTH AND ACCURACY

Beaver "4-Way"
One Piece Threaders
1/4 to 3/4" Adjustable!



Popular favorites for many years. Patented design. Nothing similar on the market. Fully self-contained. No loose dies — no loose bushings. Fully adjustable for standard, oversize or undersize threads. Thread ¼, ⅜, ½ and ¾. ⅛th inch dies extra, when desired.

Buy through any leading supply house.

Write for latest 48-Page Catalog No. 44 of hand tools and power units and machines.

BEAVER PIPE TOOLS

745 GROW AVE. WARREN, OHIO

(*Continued from page 328*)

ment for an average 2½ ton truck weighs approximately 400 pounds.

The following test report of Gasogene unit installed on an unaltered two ton Dodge truck, is of interest: The truck was loaded with a 2½ ton pay load and driven 135 miles over fairly hilly roads; the maximum speed limit of 35 miles per hour was observed. The average speed was 30.5 miles per hous, and 1.4 pounds of charcoal was used per mile. On the Indianapolis speedway, at controlled speed of 35 miles per hour a 1½ ton Chevrolet truck equipped with the Gasogene is reported to have traveled 105 miles without refueling. A Packard Clipper with Gasogene installed on a trailer is reported to have maintained normal speeds with a top of 70 miles per hour.

* * *

MEANING OF OCTANE NUMBER

EXPLAINING the meaning of "octane" as applied to gasoline motor fuels, H. W. Harts, vice president in charge of Manufacturing, Warren Petroleum Corp., Tulsa, Okla., addressed the Purchasing Agents Association of Tulsa, said that the octane scale was proposed by Dr. Graham Edgar of the Ethyl Corporation. He chose a fuel with very good anti-knock characteristics, Iso-Octane, and called it "100". He then chose a material with a very poor knock characteristic, heptane, and called it "0" and from these two materials he created the present scale. These two fuels are mixed in varying proportions until a mixture is attained which has exactly the same knock characteristics as the fuel being tested, and the percentage of the Iso-Octane in the mixture is the octane rating of the fuel being tested.

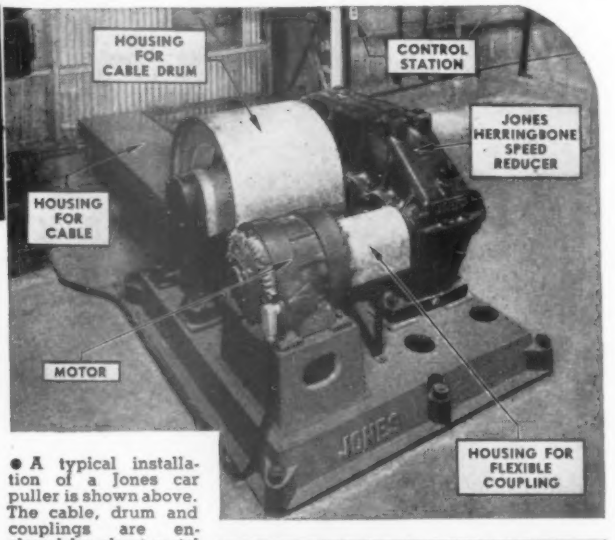
For spotting your cars-
JONES CAR PULLERS

YOU will be surprised how much time can be saved in the spotting and switching of cars by using a Jones car puller. These sturdy, compact units will speed up car handling to the point where they soon pay for themselves in the saving of time and labor.

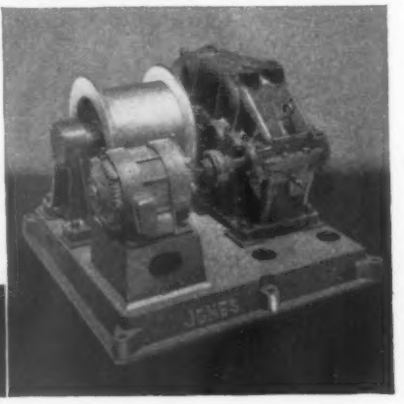
These car pullers are built by Jones as complete units with motor included if desired, or with base to take standard motor, as supplied by the purchaser. The cable drum is driven by a Jones triple reduction Herringbone speed reducer and the control station may be located at a point to give the operator a clear view of the tracks and spotting positions.

Even in plants where comparatively few cars are handled it has been found that a Jones car puller more than pays its way. Prices and complete information will enable you to judge whether such an outfit might pay out in your plant. Write for complete information.

W. A. JONES FOUNDRY & MACHINE CO.
4453 Roosevelt Road, Chicago, Illinois



● A typical installation of a Jones car puller is shown above. The cable, drum and couplings are enclosed by sheet metal housings as an extra precaution in this installation to eliminate all hazard from moving parts.



● A complete Jones car puller unit. These outfits are for use with wire rope and are manufactured in a wide range of capacities to suit the number of cars to be handled in each plant.

Jones

HERRINGBONE—WORM—SPUR—GEAR SPEED REDUCERS
CUT AND MOLDED TOOTH GEARS • V BELT SHEAVES
ANTI-FRICTION PILLOW BLOCKS • PULLEYS
FRICTION CLUTCHES • TRANSMISSION APPLIANCES

We take our own Kick in the Pants —if we earn it!



Maybe you know the plastic molder's best alibi when his shipments to you go astray—"metal insert trouble." Either shipments to him wandering off, or wandering tolerances after they get there — he says. Well, at Kurz-Kasch, we can't pass the buck on your plastic molding schedule! Luckily, we don't have to very often.

We take full responsibility for *all* inserts, most of which are made right in our plant—all kinds, of all metals, by all methods. That means that when you place your molding job with Kurz-Kasch, you're also placing complete responsibility for that job in full — that engineering, mold-making, insert-making, molding and finishing will mesh together to get out specified quantities at stated times without excuses.

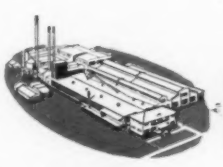
All these facilities are grouped under one roof in one of the largest, best-equipped exclusive custom molding plants in the country—and our Dayton, Ohio, address makes it mighty convenient. We'll let our 28-year-old record of service to American industry speak for the caliber of our work. What *we* want to say is—if you have molded plastics on your mind, talk it over with a Kurz-Kasch engineer. No obligation—just ask.

"A Businessman's Guide to the Molding of Plastics"

Send for your free copy of this illustrated brochure. Just write to Dept. 7 on your letterhead and we'll send it with our compliments.



Kurz-Kasch



For over 28 years Planners and Molders in Plastics

Kurz-Kasch, Inc., 1431 South Broadway, Dayton 1, Ohio. *Branch Sales Offices:* New York • Chicago • Detroit Indianapolis • Los Angeles • Dallas • St. Louis • Toronto, Canada. *Export Offices:* 89 Broad Street, New York City



Reflecting the Integrity of the Maker

Each time you see the Harshaw trademark, whether on tank car, package or small laboratory bottle, remember it identifies chemicals that will help to do a better job . . . truly reflecting the integrity of the maker.

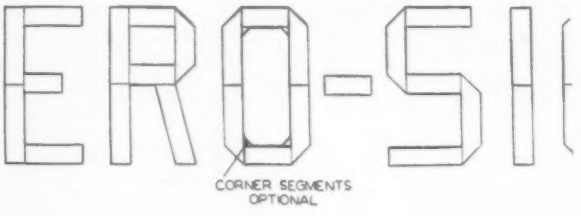
Harshaw will always guard the quality of its chemicals . . . chemicals which you identify by the Harshaw trademark . . . and which you buy with confidence. For more than 50 years Harshaw has persevered in ceaseless research and field investigation. As a result, thousands of manufacturers have been supplied with hundreds of different chemicals which have helped them . . . and which in addition have proved a source of satisfaction to them and to us.

★

THE HARSHAW CHEMICAL CO.
1945 East 97th Street, Cleveland 6, Ohio
BRANCHES IN PRINCIPAL CITIES

DURABLE SIGNS FOR FACTORIES AND AIRPORTS

PORCELAIN enamel on steel has demonstrated its suitability for permanent signs and has been widely used by all types of industry for markers, identification signs, advertising displays, permanent notices and store fronts as well as for household and industrial equipment.



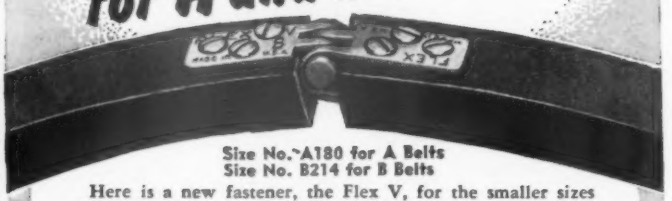


Any desired color is readily available and the finished product is bright, weatherproof, fireproof, sturdy and permanent.

To provide permanent markers which will not become faded by weathering, the Market Development Division of Carnegie-Illinois Steel Corporation has de-

(*Continued on page* 334)

and now the FLEX V TRADE-MARK
A new Fastener for A and B V-belts



Size No. A180 for A Belts
Size No. B214 for B Belts

Here is a new fastener, the Flex V, for the smaller sizes of V-belts that is going to establish the same outstanding performance record as the Alligator V-belt fastener has already established for the larger sizes of V-belts.

This new Flex V fastener is made in two sizes for A and B section V-belts. It is simple in design, easy to apply and the separable hinge joint makes for quick replacement of V-belts without dismantling shafting or machinery. No metal touches the pulley so Flex V fastened belts can be run on a V-flat drive.

Folder No. V-12 gives complete details on this new Flex V fastener with list prices, special tools and application information. Your request will bring a copy.

Order from your supply house

FLEXIBLE STEEL LACING CO.
4697 LEXINGTON ST., CHICAGO 44, ILLINOIS

Also sole manufacturers of Alligator Steel Belt Lacing for flat transmission belts. Alligator V-belt Fasteners for V-belts and Flexco HD Belt Fasteners and Rip Plates for fastening and repairing conveyor belts.

FROM DOME REFLECTORS TO FLUORESCENTS

You can depend upon highest quality efficiency and durability when you

SPECIFY BENJAMIN PORCELAIN ENAMEL LIGHTING UNITS



Low cost, high efficiency and "built-like-a-battleship" durability make Benjamin Turn-Lox RLM Dome Reflectors the logical choice for tens of thousands of industrial locations. Like all Benjamin units, they are built to deliver maximum lighting efficiency at lowest *per year* operating and investment cost.

In specifying Dome Reflectors, remember that only in Benjamin units do you get all three: *the RLM Label*, for certification of correct design, high efficiency and uniform quality; BENJAMIN TURN-LOX for time-saving cleaning and relamping operations; BENJAMIN LIEE-TIME PORCELAIN ENAMEL . . . specially developed for battleship durability, quicker, easier cleaning, and maintenance of original lighting efficiency through the years. For Free Bulletin, write Benjamin Electric Mfg. Co., Dept. Y, Des Plaines, Ill.

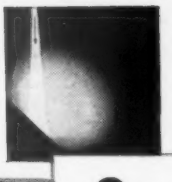
BENJAMIN TRADE MARK
Lighting Equipment
DISTRIBUTED EXCLUSIVELY THROUGH ELECTRICAL WHOLESALERS

1 Benjamin Life-Time Porcelain Enamel reflecting surfaces meet RLM specifications of one ground and two coats of separately fired white porcelain enamel and in addition, have durability advantages resulting from years of Benjamin pioneering in porcelain enamel development.



2 Corrosion Resisting Reflector Bead Construction . . . example of Benjamin "built-like-a-battleship" construction; porcelain enamel seal protects against moisture penetration and corrosion.

3 Shielding Angle of 72½ degrees (RLM specification) minimizes direct glare.



4 Highest Light Reflecting Efficiency consistent with proper light diffusion; meets highest RLM specifications for light output of 78% or more of light generated by bare lamp.

5 Turn-Lox...rugged, foolproof, bayonet type coupling which permits detachment of reflector and lamp as one unit. Contacts are self-cleaning when reflector is turned one quarter turn for removal and replacement.



1127

(*Continued from page 332*)

signed a series of porcelain enameled steel segmented sections which can be readily assembled into letters, figures, or symbols as desired. Typical segments, letters and figures are illustrated. These enameled steel segments can be made by any porcelain enamel plant, and shipped in compact boxes, each containing the segments for a letter or character with detailed directions and the necessary screws and washers required for quick and easy assembly on the surface selected.

The height of letters, sizes, colors, shapes and widths of strokes in the proposed segmental porcelain enamel markers all conform to the CAA suggested standards as presented in their book on "Air Marking." Temperature varieties will not affect modern porcelain enamels, nor are they likely to chip or scratch. Likewise they are stainproof and resistant and moistureproof. An occasional washing with soap and water is all that is required to restore them to original gleaming brilliance—a much easier task than repainting or touching up a faded temporary sign. Porcelain enamel colors are true and are not affected by sun or weather.

WATER STOCK-PILE

LARGE-SCALE winter "harvest" of cold river water to replenish underground supply for summer use in air-conditioning and industry is expected to have widespread application after the war.

Dr. O. E. Meinzer, U. S. Department of Interior's ground water expert, proved the water-harvest idea while solving an industrial water shortage at Louisville.

Unable to get cooling machinery, Louisville distil-

(*Continued on page 336*)



A New Precision Holder for Better Reaming

Here is a reamer holder designed and built by reamer specialists, with the one basic idea of bringing to your turret lathes, hand and automatic screw machines, the full precision qualities inherent in L & I Ground Flute Reamers.

The L & I Precision Centering Reamer Holder employs a new design principle. It quickly establishes a new center absolutely true with the spindle axis, and drives the reamer from this dead center. *Reamer does not float* — but follows true centerline free from weight or pressure. No bushings — no bell-mouthing — no tapered holes — corrects diagonal errors in turrets with worn locks.

Standard model holds reamers from 1/16″ to 7/16″ diameter interchangeably. Larger model for reamers 7/16″ to 1⅛″ diameter.

Write for bulletin giving full specifications and prices.

LAVALLEE & IDE, INC. • CHICOPEE, MASS.

L&I GROUND FLUTE REAMERS

SINCE 1885 –

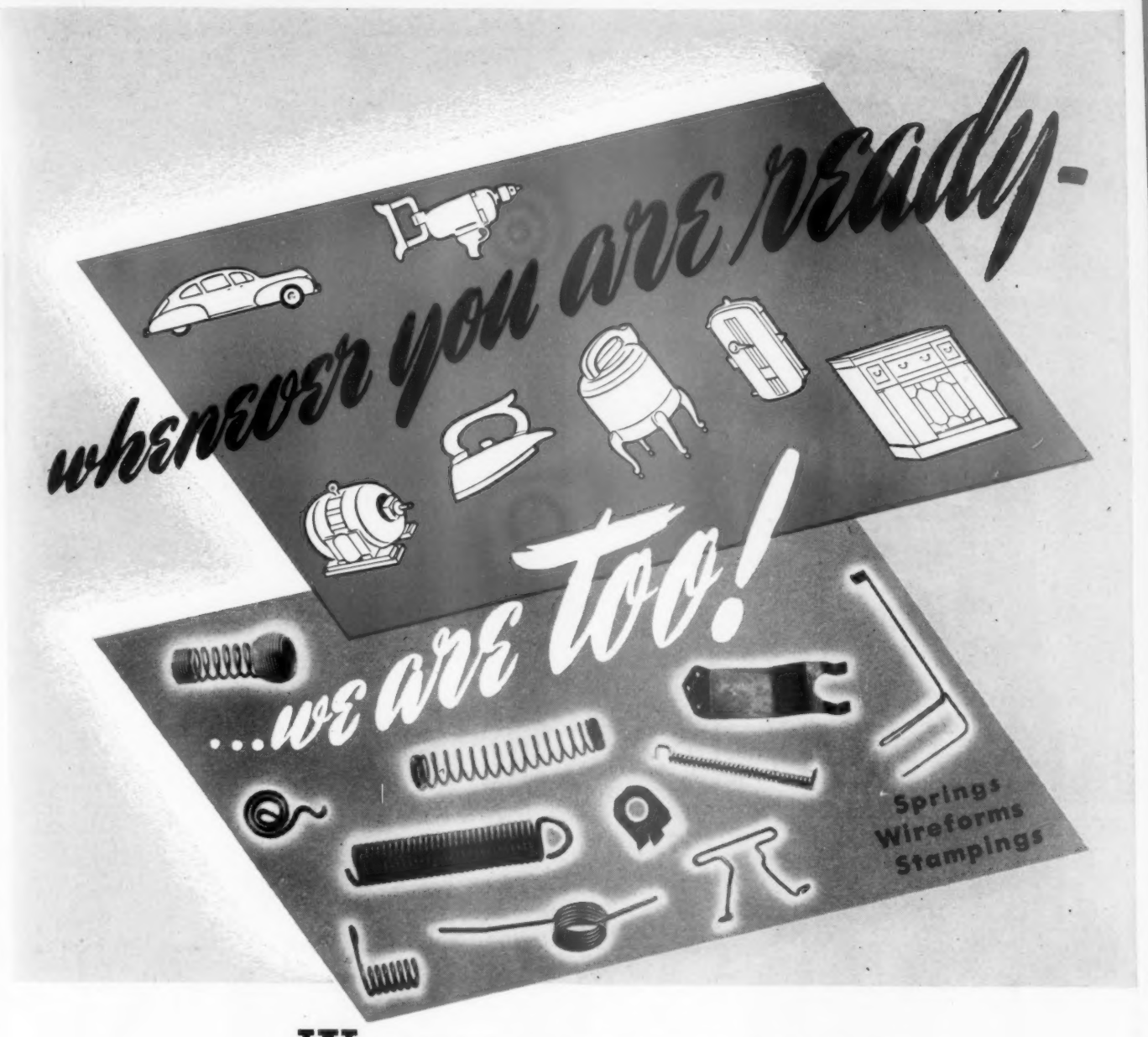


Finest materials and the know-how acquired in more than a half century of experience in applying adhesives to paper for specific purposes accounts for the outstandingly fine character of Tanglefoot Gummed Kraft Sealing Tape.

If you haven't been able to get all you wanted, remember that we have striven with might and main to distribute our war-curtailed production as fairly as possible. When restrictions are lifted we again hope to be able to supply all those who recognize the value of using this definitely superior tape.

Tanglefoot GUMMED KRAFT SEALING TAPE

THE TANGLEFOOT CO., 401 Straight St., Grand Rapids 4, Mich.



WHENEVER you are set to go ahead with the products you plan to produce for the world's peacetime markets . . . Accurate is ready to supply you with the springs and wireforms. You'll like the kind of ready-and-willing service Accurate has for you—something beyond the ordinary service of following "specs" and delivery promises. You'll find help and cooperation and solutions to problems—a service that gives Accurate customers the best springs for the purpose at the lowest ultimate cost.

Accurate is ready when you are.

Accurate Springs

Send for your copy of the new Accurate Spring Handbook. It's full of data and formulae which you will find useful. No obligation of course.



ACCURATE SPRING MANUFACTURING CO.
3825 W. LAKE STREET CHICAGO 24, ILLINOIS



(*Continued from page* 334)

leries were pumping our 57-degree subterranean water the year around, twice as fast as nature was replenishing it from the surface. Meinzer, nation's No. 1 "water doctor," suggested distilleries stop drawing ground water during winter months, use city supply of treated river water instead, except during warm months.

In addition, he said, pump into the ground about 1,000 gallons of the city's treated river water per minute as long as its surface temperature remained below 60 degrees—usually till late April. Thus restored to near-normal levels, underground supplies were adequate for industry's summer needs.

Meinzer's first large-scale application of the water harvest idea at Louisville will be tried in other areas, U. S. Geological Survey said, where strict conservation is necessary to protect ground water resources.—(*Pathfinder Magazine*).

* * *

WATER-ALCOHOL INJECTION IMPROVES AUTO PERFORMANCE

APPLICATION to the engines of ground vehicles of water-alcohol injection devices affixed to carburetors to increase power and improve performance was suggested at the annual meeting of the Society of Automotive Engineers, by A. T. Colwell of Thompson Products, Inc., Cleveland, Ohio.

Mr. Colwell said that recent scientific studies of water-alcohol injection indicate that a 50-50 combination of alcohol and water provides both shock control and internal cooling. Design and use of higher-compression, lighter-weight engines would be facilitated

(*Continued on page* 338)

NEWTON
Screw Machine Products
THE NEWTON MANUFACTURING CO., Plainville, Conn.
FOR COMPLETE VICTORY ★ AND A LASTING PEACE




SNIP IT, SEAL IT, SHIP IT!

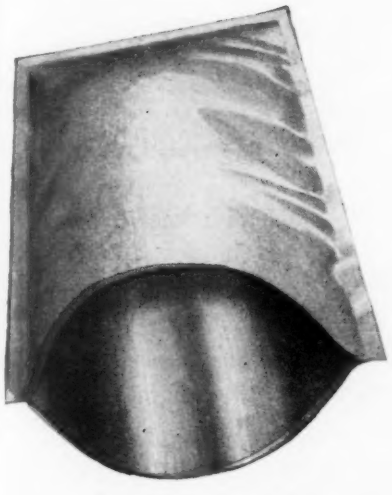
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Tubular Form—1000 Foot Reels



Make quickly in your own plant TITE-SEAL Cellophane Bags of any size that seal out dust, air, water and moisture-vapor. They protect military supplies from damage in transport or storage.

Acceptable for Methods I and IA, type III packaging . . . available in 3, 4, 6 and 8 inch widths under proper priority . . . 1000 feet to the reel. Saves stocking large quantities of special-sized bags. (Stock Bags also available in above widths.)

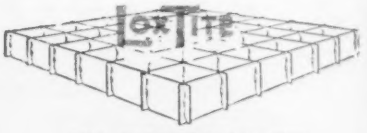


"All-Size" Containers and custom made bags can be furnished plain or printed in any widths or lengths desired on special orders of sufficient quantity.

Heavy foil-lined laminated bags or tubes meet every requirement of Methods I, IA and II Military Packaging. LOXTITE Partitions give crash protection to fuses, rations, and delicate or fragile items.

Reasonably prompt shipment can be made on government orders bearing end use. A card will place our technicians at your command.

T. M. Reg. & Patent applied for



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BOX PARTITION DIVISION
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Beat Competition by BEATING RUST



Plan your product to be a winner . . . . in the face of keen future competition . . . . by using Harper Everlasting Fastenings—the fastenings that (1) resist rust and corrosion, (2) stand up in the presence of many acids, alkalies and other tough conditions, (3) add years of service life AT LOW COST, (4) can be removed with ordinary tools and used again and again. Every Harper fastening is made of either brass, copper, naval bronze, silicon bronze, Monel or stainless steel (nothing in common steel).

4360 ITEMS IN STOCK

Harper is known as "Headquarters for Non-Ferrous and Stainless Fastenings" . . . . carries large and complete stocks of 4360 different items and is continually adding others . . . . maintains large stocks of metals in bars, rods, wire, sheet and other basic forms from which special fastenings can be quickly made. Write for 1945 Catalog.

THE H. M. HARPER COMPANY
2606 Fletcher Street, Chicago 18, Illinois

BRANCH OFFICES: New York City • Philadelphia
Los Angeles • Milwaukee • Cincinnati • Houston
Representatives in Principal Cities

HARPER
EVERLASTING FASTENINGS

BRASS • BRONZES • COPPER
MONEL • STAINLESS

(*Continued from page* 336)

by such injection which, he said, would be particularly effective with supercharging.

Injection was reported to permit of the use of fuels 10 to 15 octane numbers lower than those normally required, and thus to raise the octane rating of an engine for greater power and performance. Engine roughness, damaging bearings and other parts and rapidly increasing wear, was said to be overcome. Cited as proof were reports of aircraft fighter pilots, who put engines to maximum use, and the comments of motorists who have noticed that engines appear to operate more smoothly and to produce more power in foggy weather.

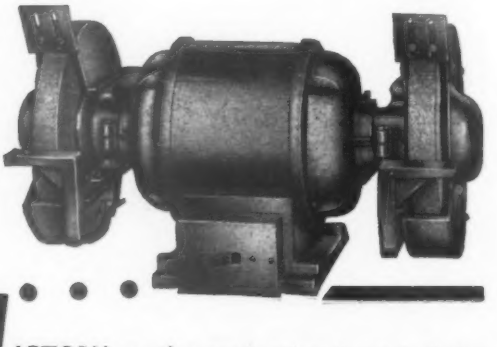
COMBINE SUPERCHARGER, ENGINE, TURBINE, FOR FUTURE'S POWERPLANTS

POWERPLANT of tomorrow's heavy-duty motor vehicles may be a combined diesel engine, supercharger, and turbine, it was suggested before the Diesel-Fuels & Lubricants Meeting of SAE St. Louis Section at a meeting in St. Louis.

The engine-supercharger-turbine combination was proposed by R. W. McLaughlin and C. F. Harms, of Elliott Co., Jeanette, Pa., as an effective method of putting exhaust gas to work. They explained that application of the supercharger would increase the engine's power output approximately by 50 per cent, and that the turbine would perform useful work in driving the supercharger. They added that future possibilities include utilization of the diesel engine merely to function

(*Continued on page* 340)

Valley Heavy Duty **GRINDERS** Ball Bearing **MOTORS**



V . . . .

VICTORY on the production front is being aided mightily by the economical and faithful service of thousands of Valley motors and grinders in war plants everywhere.

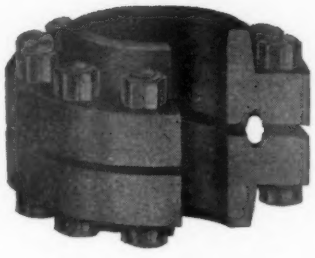
Prompt delivery of Valley Equipment can be obtained by those authorized to purchase.

Valley Ball-Bearing Motors from ½ h.p. to 75 h.p. . . . Grinders from ¼ h.p. bench type to 5 h.p. pedestal models.

VALLEY ELECTRIC CORP.
4221 Forest Park Blvd. St. Louis, Missouri

PRESSURE-PROOF JOINTS

for High Pressure Service





Use GRUV-SEAL "Forged Iron" Ring Gaskets

Pressure-proof joints—tight as a weld—give relief from pipe line shut-downs. With Gruv-Seal "Forged-Iron" Ring Gaskets, wrench pressure molds a tight seal that stays tight always—reduces power losses and other pipe line trouble. Gruv-Seal "Forged-Iron" Ring Gaskets are machined to a fine, smooth finish, and fit perfectly. These gaskets should be used at all flange connections, valve bonnet joints, and at joints where ready disassembly is a necessary requirement. They are available in several different grades of metal for different services.

Gruv-Seal "Forged-Iron" Ring Gaskets are manufactured by a special forging method which eliminates metal porosity and interlocks the metal fibre lines into a dense, tough structure such as is obtained by no other fabricating process. Gruv-Seal "Forged-Iron" Ring Gaskets are exact in every detail; true in diameter, circumference, and in thickness; perfectly proportioned and machined to a fine, smooth finish. The metal from which these are forged possesses corrosion-resisting properties beyond those of ordinary steels.

Gruv-Seal "Forged-Iron" Ring Gaskets are forged in a wide range of sizes, including all standard A.P.I. sizes. New sizes are constantly being worked out as requirements occur. Write for special bulletin on Gruv-Seal "Forged-Iron" Ring Gaskets.

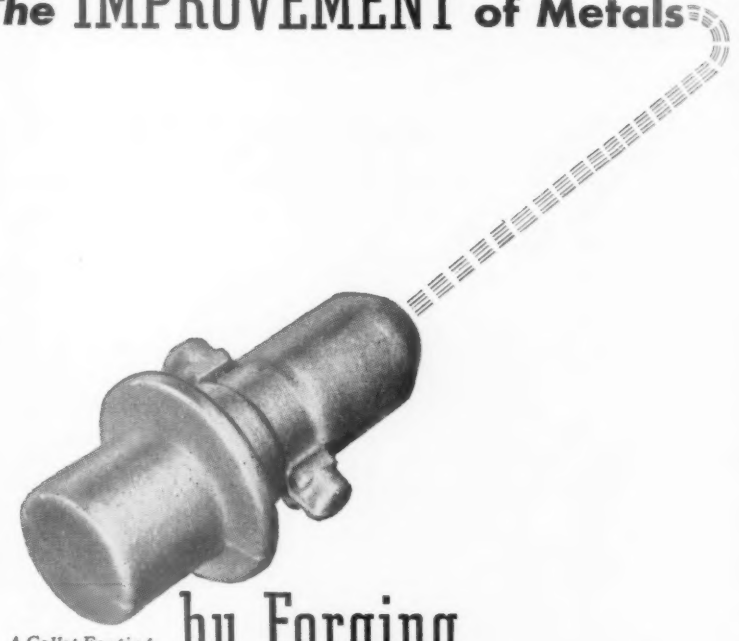
These gaskets are one item of the complete line of Diamond "S" Forged Boiler and Tank Accessories which includes manhole cover assemblies, handhole cover assemblies, special welding street ells, all of which are forged to close tolerances from suitable metals, and fully meet and exceed A.S.M.E. requirements for steel use in pressure vessel parts.



Catalog No. 10 illustrates, describes, and lists a complete line of forged steel boiler and tank accessories, and contains technical data and general information about the application of such products.

THE STEEL IMPROVEMENT & FORGE CO.
943 East 64th Street • Cleveland, Ohio

The IMPROVEMENT of Metals by Forging



A Collet Forging

The maximum IMPROVEMENT OF METALS BY FORGING utilizes fully the fibre-like flow line structure of wrought metals to obtain *metal quality* in the exact degree required to meet a given service condition. Forgings possess the high tensile and impact strength and toughness that assures dependable performance. Operating equipment fortified by forgings is worthy of your confidence and your preference.

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Protecting Athlete's Feet from "Athletes foot" is another example of the versatility of treated papers — some of the requirements are: stretch, elasticity, moisture and fungus resistance, and great strength. Central laboratories have been designing specialized papers for manufacturing purposes for 40 years — why not let us see if treated paper can solve your cost or production problem. Send for free book "Industrial Paper — The New Production Answer."

CENTRAL PAPER COMPANY INC.
2446 Lakeshore Drive • Muskegon, Michigan

(*Continued from page* 338)

as combustion chamber for the turbine and to drive the supercharger, with the turbine itself becoming the source of power.

HEAVY INDUSTRIAL USE OF POWER IN POSTWAR PERIOD

A PREDICTION that peacetime industrial use of electric power will be almost 80 per cent higher than in the pre-war year of 1939 was made at a meeting of the Committee for Economic Development in Philadelphia, by Charles B. Stainback, manager of the Industrial Sales Department of the Westinghouse Electric Corporation:

"We can look for a large decrease in the wartime industrial power consumption of 171 billion kilowatt hours annually immediately following the end of the war. But within one or two years the demand will build up to about 147 billion kilowatt hours per year as compared to the 1939 pre-war demand of 82 billion kilowatt hours.

"Few, if any, industries will need the full amount of power they now use in war production when they get back to peacetime operations. However, new developments and faster and better operating practices through the use of electrical equipment will keep the power demand far above the pre-war level. Industrial operators have realized the benefits of electrical power applications in their fields. Uses such as heat treating, dielectric heating for bonding and curing materials, and brazing will be continued, and in many cases will be extended for better operations."

Do You See Your Spring Here?

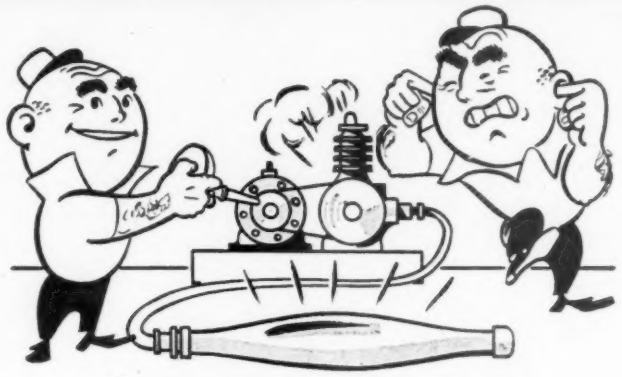


We specialize in fitting the spring to the need! If the spring for your postwar product is not pictured above, describe how and where it will be used and our engineers will suggest the right design for the job. This holds good also for your present products. The performance of many an existing appliance or machine could be materially improved merely by supplanting old springs with new ones "engineered" into the design. Peck Springs are made up to ⅛" wire size. Let's get together.

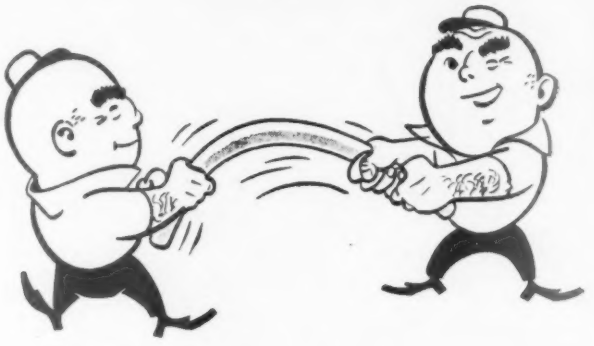
THE PECK SPRING CO., 40 WELLS ST., PLAINVILLE, CONN.

Peck SPRINGS & SCREW MACHINE PRODUCTS

HOW BUNDYWELD SCORES
ON ACTUAL STRENGTH TESTS

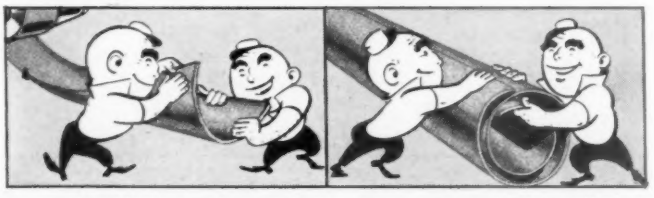


(1) **ULTIMATE** bursting strength (¼" x .028" annealed) of 12,500 lbs. per square inch.



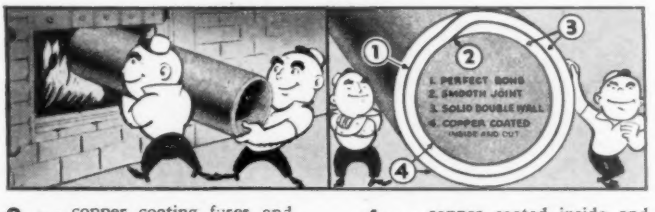
(2) **UNUSUALLY** high fatigue strength . . . especially recommended for use where vibration occurs.

HOW BUNDYWELD IS MADE



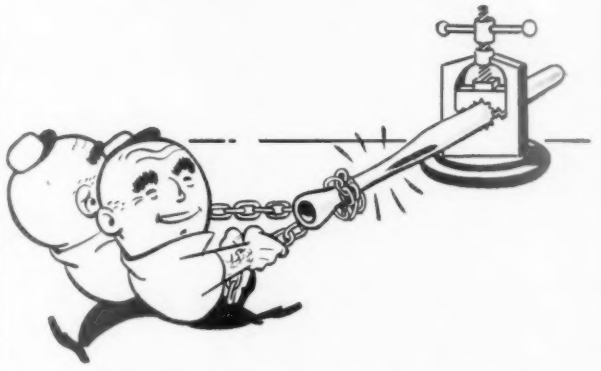
1 Bundyweld Tubing is made by a process entirely different from that used in making other tubing. A single strip of copper-coated S.A.E. 1010 steel is continuously rolled twice laterally...

2 . . into tubular form. Walls of uniform thickness and concentricity are assured by the use of close tolerance cold rolled strip. This double rolled strip passes through a furnace where the . . .



3 . . copper coating fuses and alloys with the double steel walls. After brazing and cooling, it becomes a *solid* double wall steel tube, copper brazed throughout 360° of wall contact . . .

4 . . copper coated inside and out, free from scale and closely held to dimensions. Hard or annealed in standard sizes up to ⅝" O.D. Special sizes cold drawn. Also furnished in Monel.



(3) **ULTIMATE** tensile strength (annealed) 45,000 to 52,000 P.S.I. — yield strength, 30,000 to 36,000 P.S.I. — per cent elongation in 2" — 30% to 40%.



(4) **HARDNESS** — Rockwell (30T — scale) 43 - 50.

For further information, write Bundy Tubing Co., Detroit 13, Michigan

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ENGINEERED TO YOUR EXPECTATIONS

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Reduced glare is an important reason for your selection of a Specific Near Infra-red source. Next, for baking, drying and evaporating, a radiant source peaking between 13,000 and 14,000 Angstrom Units is most desirable. These are two definite reasons for your use of Penetray.

Penetray production is unusually costly because of filament and construction detail. This, in our opinion, is necessary to a quality product. Lamp life and efficiency is improved - resistance to vibration being maximum. A nonex arbor protects against softening of glass and resulting distortion of filament due to sagging. Radiant energy is emitted in both the vertical and horizontal.

Honestly, now, don't you want to know more about this new product and the prospect of improved results?

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COLOSSAL

is the word for the Pacific War. It will call for huge amounts of supplies, most of which will require double and triple waterproof packaging to prevent ravages of mildew and dry rot. Every man out there needs 96 *tons* of supplies per year...which helps to explain why paper to pack and protect those supplies is a No. 1 war material shortage. That war paper doesn't come back ...all the *more* reason why we at home should turn back for re-use every pound of paper we get. Start right now...with this magazine! Share it with others who may not be able to get a copy... but be very sure that whoever is last in line turns it in for salvage, unless it is preserved for reference. Then look around for bundles of old magazines in files or storerooms. Turn them in for the next collection.

IN YOUR HANDS

lies part of the solution to a No. 1 war material shortage. Yes...*paper!* Thousands of tons of paper are going to the Pacific war as packaging for the thousands of items our fighters need. *And that war paper won't come back!* With so many lumberjacks in the army and pulpwood supplies critically short, there's only one other place where Uncle Sam can look for the paper to make or wrap over 700,000 war items. That's to *you*. So here's what you can do to help.

—Pass this magazine along to your friends. Put a note on it...LAST READER TURN IN FOR PAPER SALVAGE, unless it is to be preserved for reference.

—Dig out those piles of old magazines in your attic, cellar or storage room. Bundle up every one you can for the next collection.

It's in your hands!



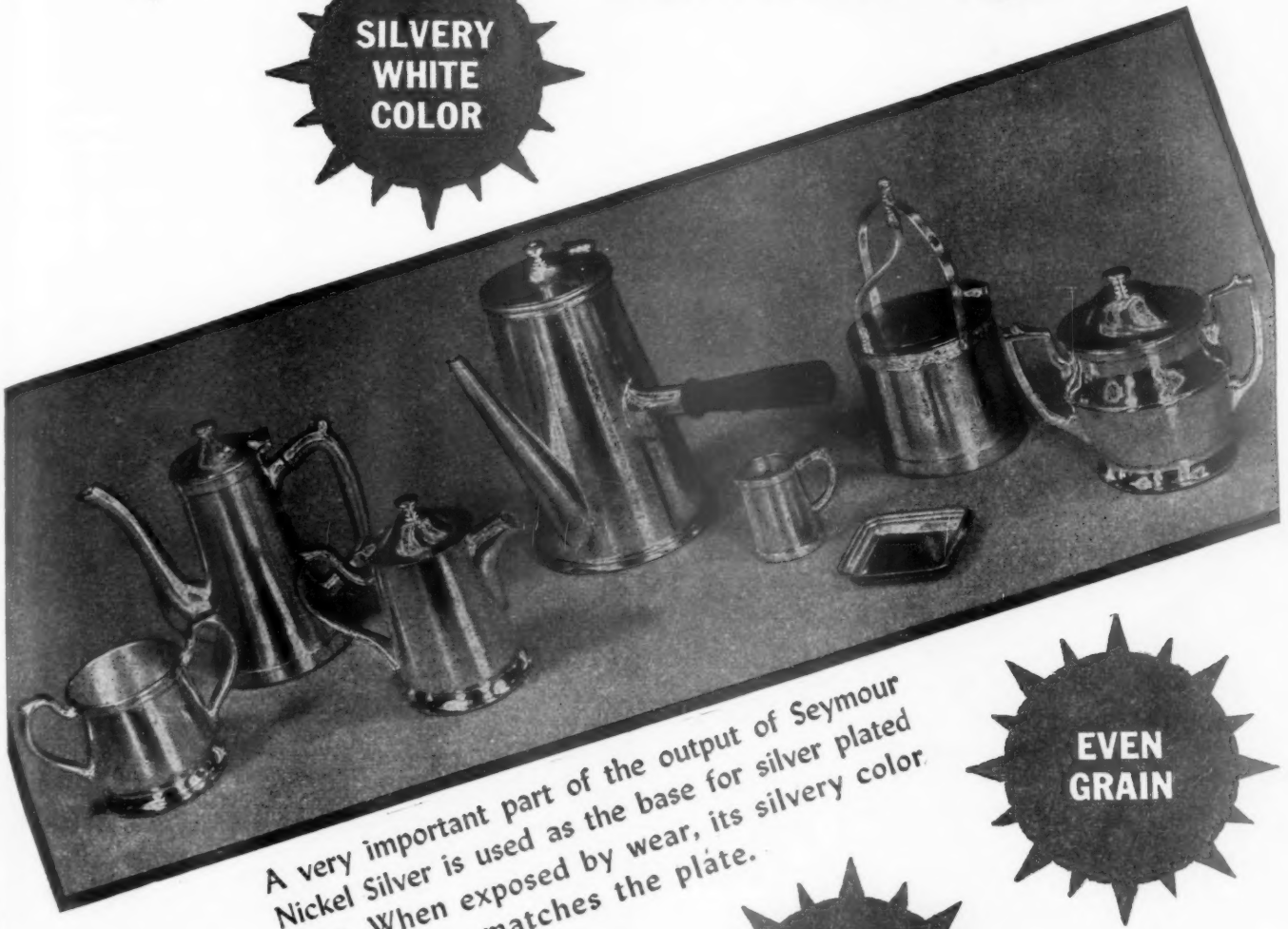
for POSITIVE, DEPENDABLE LUBRICATION
under all conditions

Over 30 years of specialized research, designing and manufacturing of every conceivable type of lubricator, is your guarantee of a scientific answer to all of your lubricating problems. Gravity Feed, Wick Feed, Constant Level and Multiple (manual and automatic) Oilers, Oil and Grease Seals are fully described in Catalog No. 60—write for your copy.

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1865 South Kilbourn Avenue · Chicago 23, Illinois
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SILVERY WHITE COLOR



A very important part of the output of Seymour Nickel Silver is used as the base for silver plated ware. When exposed by wear, its silvery color matches the plate.

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WIDE DUCTILITY RANGE

CORROSION RESISTANT

EASILY SPUN OR FORMED

WE SHALL BE GLAD TO HELP YOU NOW TO PLAN SEYMOUR ALLOYS INTO YOUR POSTWAR CIVILIAN PRODUCTS.

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SEYMOUR SINCE 1878 Non-Ferrous Alloys

Also NICKEL, COPPER, BRASS, BRONZE, ZINC ANODES • BRIGHT NICKEL • PLATERS' SUPPLIES • WELDING RODS



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Synthetic
• SHEETS
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• Cut, molded or extruded—Acadia Synthetic Products can be processed to the closest tolerance to meet your most exacting requirements—in any shape, size or type of synthetic rubber you need.

Chemically, too, they can be compounded to match specific conditions with emphasis in varying degrees on resistance to air, light, petroleum, ozone, etc. . . . or qualities found in natural rubber—and some that are not.

Tell us the characteristics, or combination of characteristics, you need. Acadia's engineers are ready to help you work out the exact synthetic necessary.

Write us today.

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Processors of Synthetic Rubber and Plastics • Sheets • Extrusions • Molded Parts
DIVISION WESTERN FELT WORKS
Largest Independent Manufacturers and Cutters of Wool Felt
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PLACEMENT OF PORTABLE FIRE EXTINGUISHERS

PORTABLE fire extinguishers should be placed where they are readily available and access to them is not likely to be cut off by fire.

When used to provide general protection for an area containing normal fire hazards, extinguishers should be so placed that at least one large or two small ones can be reached by traveling no more than 50 feet from any point in the area. Fewer extinguishers are required where fire hazards are light, and more where they are severe.

When the extinguishers are used for safeguarding a specific fire hazard, they should be mounted near it, but not on or so close to the hazard that they will be involved if it catches fire. If the hazard is located in a relatively small room, it is good practice to mount the extinguishers either just inside or outside doorways leading into the room. Operators can easily get at extinguishers so placed and have a safe line of retreat in case of necessity.

Extinguishers may be mounted on columns or walls, with hangers, brackets or shelves as supports. The tops of easily handled units should not be more than 5 feet from the floor; with heavy units, this distance should not exceed 3½ feet.

Extinguishers should be placed where they can be plainly seen. When they are wholly or partly concealed, their locations should be marked with conspicuous signs.

Nothing that might interfere with the accessibility of an extinguisher should be placed under or near it. All extinguisher locations should be checked at least once a day, and any obstructions found should be removed.

TISSUE TIPS by VICTORIA



Specify VICTORIA TOILET TISSUES
Single Fold, Double Fold or Black Core—for dependable quality.
Victoria Paper Mills Co., Fulton, N.Y. Craftsmen in paper-making since 1880.

relays

IN SAFETY CONTROLS FOR GAS PILOTED HEATERS



Series 150 A. C. Relay

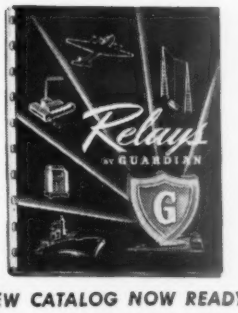
Designed by Guardian engineers to be used in a half wave rectified circuit with a shading ring, thus eliminating the use of a filter condenser commonly required in similar electronic circuits.

HOW *16 Relays* BY GUARDIAN help prevent explosions...

In their multiple burner Safety Control, Drying Systems, inc. of Chicago has given industry a device that saves millions of dollars yearly in losses from fire and explosion resulting from leaky valves, vapor accumulations and unburned gases in heaters and ovens.

This control, pictured above, uses the electrical conductive qualities of the pilot flame to complete a circuit through the rod inserted in the flame. A momentary absence of any flame in the multiple circuit is detected by the associated thyratron tube. This in turn activates the corresponding Guardian Relay to shut off the entire system.

The multiple burner Safety Control supervises up to 16 flames and uses a tube and a Relay for each flame. With so much at stake, the Relay used so plentifully in this application must be dependable. Among other Guardian Relays it is described in the new 56-page Guardian catalog. Write on your business letterhead for your copy today.



NEW CATALOG NOW READY

GUARDIAN ELECTRIC

1635-H W. WALNUT STREET CHICAGO 12, ILLINOIS

A COMPLETE LINE OF RELAYS SERVING AMERICAN INDUSTRY

ARMSTRONG ARMIDE

Carbide Tipped Cutters



ARMIDE is a sintered-carbide cutting material which approaches the diamond in hardness. ARMIDE will machine the hardest and toughest steels and sand-filled castings with ease, as well as such heretofore "unmachineable" substances as hard rubber, plastics, and even glass. Because of the extreme hardness of ARMIDE, cutter bits tipped with this material will hold their cutting edge much longer than the finest tool steels and will machine from 10 to 100 times as many pieces between grindings.

ARMIDE-tipped CUTTERS offer special advantages on machining operations involving: (1) Long runs, (2) Sand-filled castings, (3) Tough alloy steels, (4) Machining of hardened parts without annealing and subsequent re-hardening, as in maintenance work, (5) High Speed Machining, (6) Machining of unusual materials.

ARMIDE Carbide Tipped Cutters are designed for use in ARMSTRONG Carbide TOOL HOLDERS. They come in two grades ARMIDE (Red) for machining steel, and ARMIDE (Grey) for machining cast iron, brass, bronze, aluminum and non-metallics. These grades of ARMIDE are distinguished by the corresponding color of the cutter-bit shank.

Both ARMIDE (Red) and ARMIDE (Grey) Cutter-Bits come ready-ground in four standard cutter shapes (illustrated below) namely: Right-Hand Turning, Left-Hand Turning, Square Nose Finishing 80° and Round point "V". Both ARMIDE (Red) and ARMIDE (Grey) cutter-bits come with either "Square" or "Heavy Duty" shanks. The shanks of "Square" cutters have a square cross section. The shanks of "Heavy Duty" cutters are deeper than they are wide in cross section, the added depth compensating for that part of the shank cut away to receive the ARMIDE tip.



ARMSTRONG BROS. TOOL CO.

"The Tool Holder People" 303 N. Francisco Ave., Chicago, U.S.A.

Eastern Warehouse & Sales: 199 Lafayette St., New York

THE "BIG INCH" IS 1254 MILES IN LENGTH

THE largest petroleum pipeline in the United States is the "Big Inch", which was sponsored by the Petroleum Administration for war. Two feet in diameter, the "Big Inch" originates in Longview, Texas, on the edge of the East Texas oil field, and terminates 1,254 miles away, at Phoenixville, Pa., from which point it feeds crude oil to refineries in the New York-Philadelphia area.

The longest pipeline in the country is the "Little Big Inch," 1,475 miles long and 20 inches in diameter. It is a products line, carrying gasolines and other products from Texas and Louisiana refineries to New York outlets.

Both were built under the sponsorship of the Petroleum Administration for War, but are owned by the Defense Plant Corporation and operated by the War Emergency Pipelines, Inc., a non-profit company organized for this purpose by 11 eastern oil companies for the Defense Supplies Corporation.

It requires 6,706,000 barrels of crude oil and petroleum products to fill the "Big Inch" (24-inch) and the "Little Big Inch" (20-inch) pipelines, according to the Petroleum Administration for War. About 3,836,000 barrels of crude oil fill the "Big Inch" line, and 2,870,000 barrels of products fill the Little "Big Inch". Three 1,500-horsepower centrifugal pumps, developing in excess of 800 pounds pressure, are required to move the "Big Inch's" load 50 miles. To move crude oil from Longview, Texas, to New York, 26 pump stations, each with three such pumps, are necessary.

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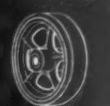
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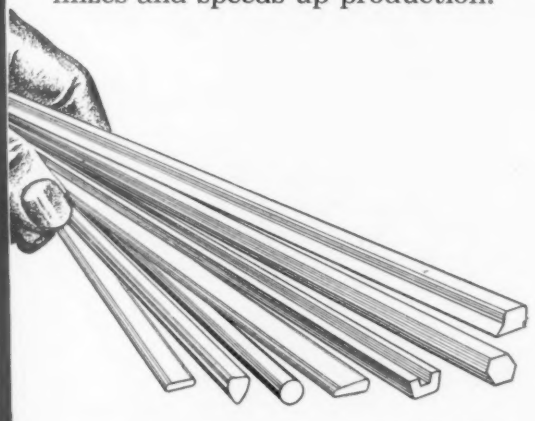
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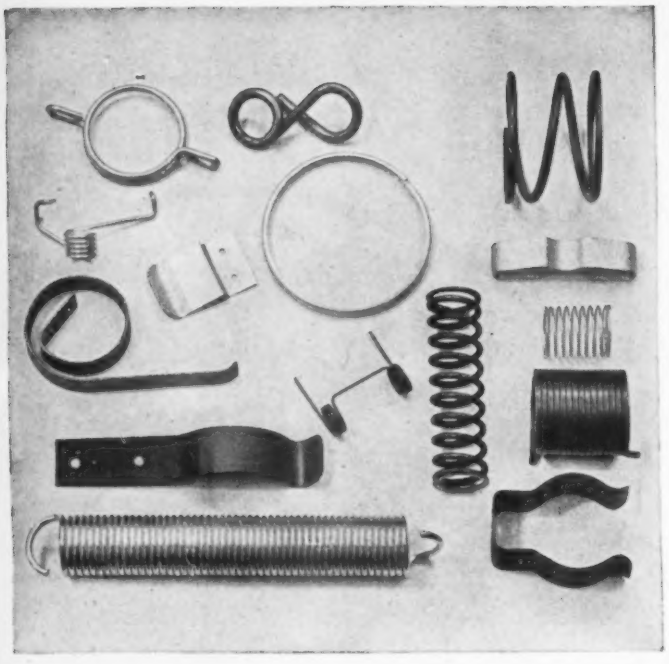
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MILITARY orders for lumber amounting to nearly a half billion board feet remain unplaced because of the manpower shortage. According to the Central Procurement Agency, Office of the Chief of Engineers, there is a nation wide shortage of 53,000 men in the lumber manufacturing business alone. This does not take into consideration the shortage in transportation and other handling facilities.

At the present time the Central Procurement Agency, which purchases lumber for the Army, Navy, and other Government Agencies, has a backlog of unplaced business for 20,000,000 board feet of western pine; 151,000,000 feet of southern pine; 200,000,000 feet of Douglas fir; 4,000,000 feet of redwood; 103,000,000 feet of hardwoods, and 20,000,000 feet of miscellaneous woods.

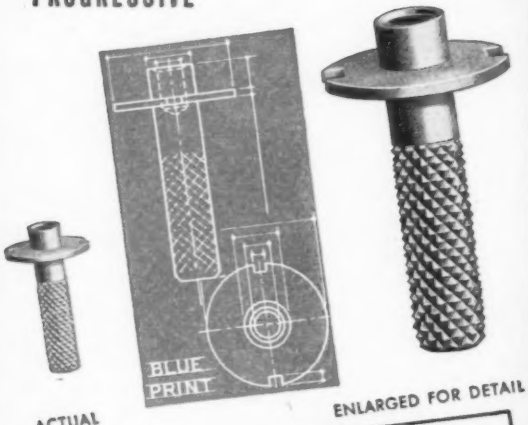
Boxing & Crating Shortage

These figures represent only a part of the total lumber requirements for the war as there are many war contractors buying independently of the Central Procurement Agency. This is particularly true of western pine, which is most adaptable for boxing and crating purposes. The shortage of this species has necessitated the use of many less desirable woods and officials say that anything that can be done to get men back into the woods or sawmills in this section would be a direct contribution to the war effort.

Importance of lumber in the war effort can be gathered from the fact as of April 1, 1945, the Central Procurement Agency had purchased 21,186,404,111 board feet at a cost of $938,663,932. The Agency is still spending about $30,000,000 a month for lumber.

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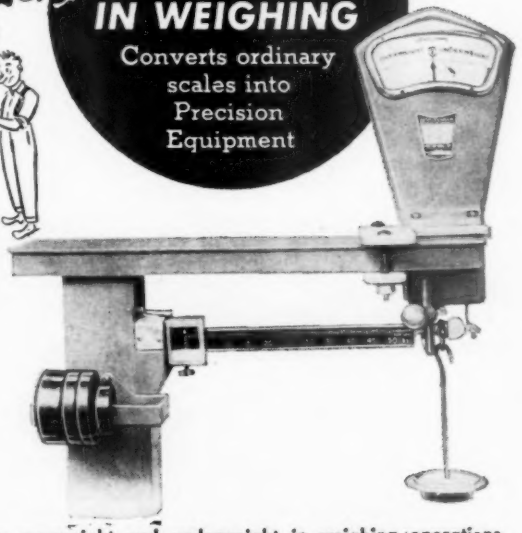
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SAFETY COLOR CODE AVAILABLE IN INDUSTRY

BASIS of the standard safety color code proposed for national use by the American Standards Association is the safety system now in use in Quartermaster and Army Service Forces Depots.

Recognizing the Army's need for a standard code, Colonel F. B. L. Myer of the Office of the Quartermaster General proposed such a system in April 1944. Prompting the adoption of the plan was the Army's widespread safety problem. Supply depots, with military and civilian personnel running into thousands, are scattered throughout the country. Fires or accidents in these Depots hold up shipments of vital supplies to the Fighting fronts. Since military personnel are frequently shifted from one Depot to another, and untrained soldiers are constantly being assigned, value of standard safety measure assumes great importance.

Color schemes for identification of various hazards have been used in the past by industrial plants, but there has been no uniformity in colors used. As a result, spontaneity of action in emergencies is lost, particularly when employees move from one plant to another. Early experiments with paint hues have had a definite bearing on the final selection.

Red, green, yellow, white, and black, and combinations thereof, were the colors finally agreed upon for the Quartermaster and ASF Depots. Red is used to identify fire protection equipment, and danger and stop signals. Green is the basic color for designating safety—the location of first aid equipment, dispensaries, stretchers, gas masks, and safety starting buttons. Yellow indicates the need for caution and marks physical hazards, such as obstacles which may cause stumbling, the projections of machinery, or pillars. Black, white or a combination of these two shall be the basic colors for designating housekeeping, sanitation and traffic markings. Solid black, solid white, or either striped or checker combinations are recommended for direction signs, corners, passageways, stairways, dead ends, traffic guides and refuse cans. Great care has been taken not to conflict with signals used in sea and air navigation or rail transportation.

The code, as set up by the American Standards Association, will be sent to safety engineers and interested organizations throughout the country for suggestions and final comment. In 1927, the Association unified on a national scale the colors now used in traffic lights, and in the 26 years of its existence has created more than 700 industrial national standards.

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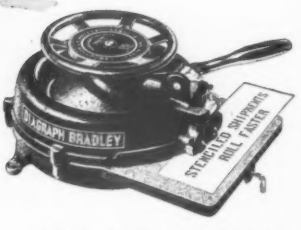
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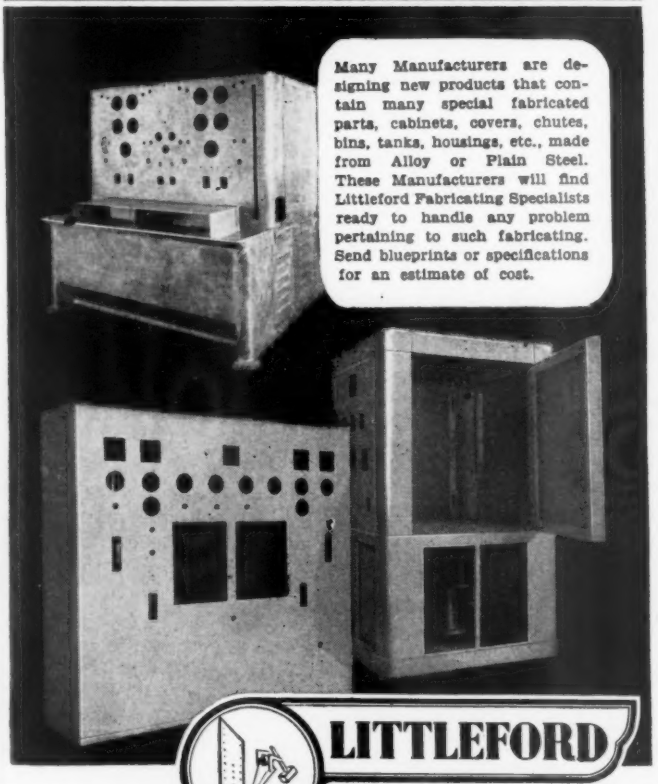


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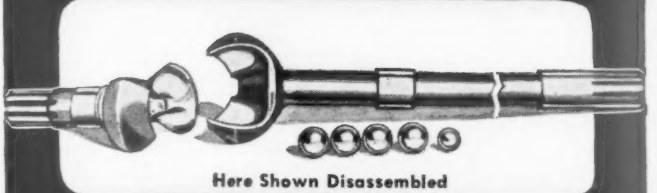


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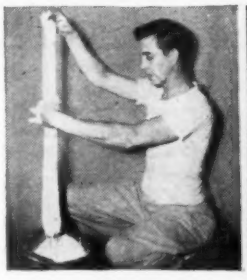
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1. Lagging material is submerged in Arabol Cement.



2. Material is saturated in a matter of seconds.



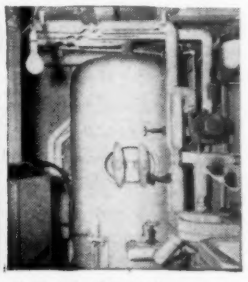
3. On withdrawal, material is partially wrung out.



4. Damp material is wrapped around pipe or duct.



5. After wrapping, material is smoothed out. When dry, it shrinks and thus pulls itself firmly around covering.



6. Finished job shows various pipes, ducts and chambers covered with cemented material. Notice workmanlike finish.

A letter from Mr. M. A. Clune, Vice President, says—"On one job where we were doing the hull insulation, another type of adhesive was specified for securing the fibreglas stripping tape but after a rigid test, the inspectors insisted that we substitute the Arabol Adhesive Cement in lieu of the other.

"If canvas is dipped in the Arabol Adhesive Cement or a brush coat is used for taping, it serves as a prime coat or sealer and saves a great deal of time and paint primer where the insulation or lagging is to be painted.

"We recommend it very highly for securing canvas, fibreglas, asbestocel paper or any other insulating material. This material is being used on projects in every shipyard in which we are working."

* * *

Many other ship builders throughout the country use Arabol Lagging Cement to save time and money and to improve the finished results of their lagging operations. One yard making LST's reports saving up to *1500 man construction hours per ship!* Another firm writes, "We have found Arabol Lagging Cement easier and faster to apply by less skilled labor at less cost and produces an installation superior in quality."

Arabol Lagging Cement dries in 4 to 6 hours and tests show it will not re-moisten even under extreme temperature conditions. It leaves a sized finish on canvas which requires only *one* coat of paint. The finished job is neat—and grease, oil, soot and other dirt wash off easily.

Full facts are available on request. Arabol has been solving industrial adhesives problems for 60 years—with over 10,000 formulae on file. Contact us for answers to your adhesives problems. Have an Arabol Engineer call for consultation. No cost, no obligation.

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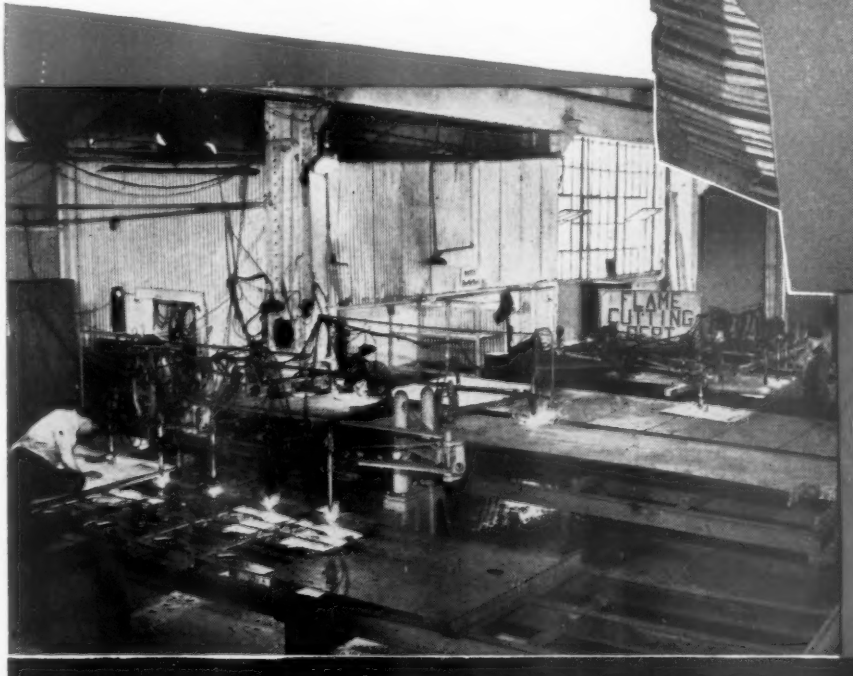
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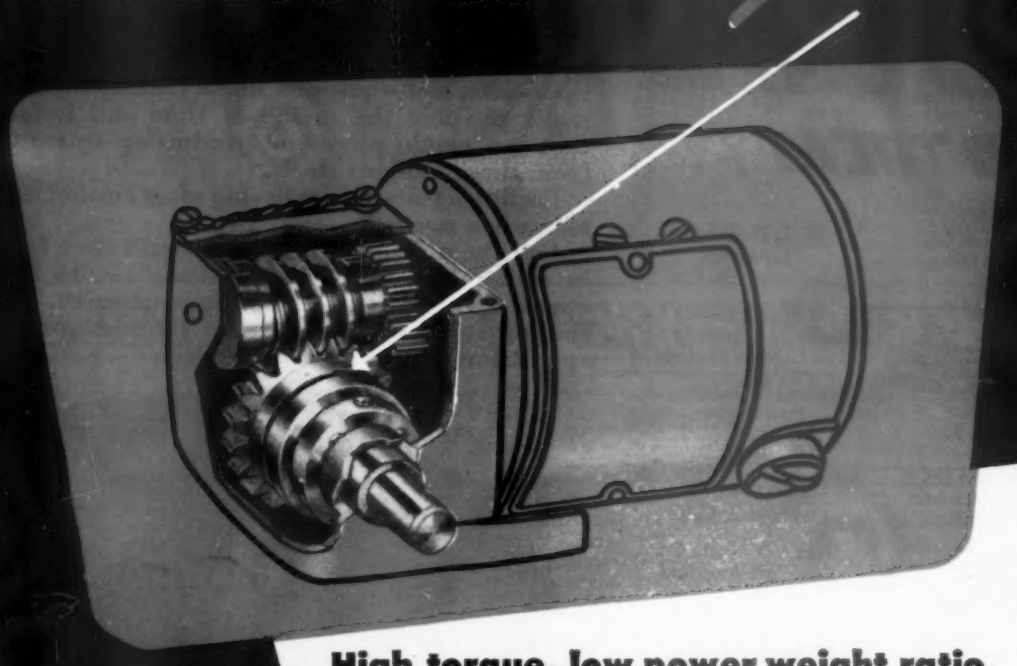
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Side view of 300-ampere a-c welder

Official U. S. Navy Photograph

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